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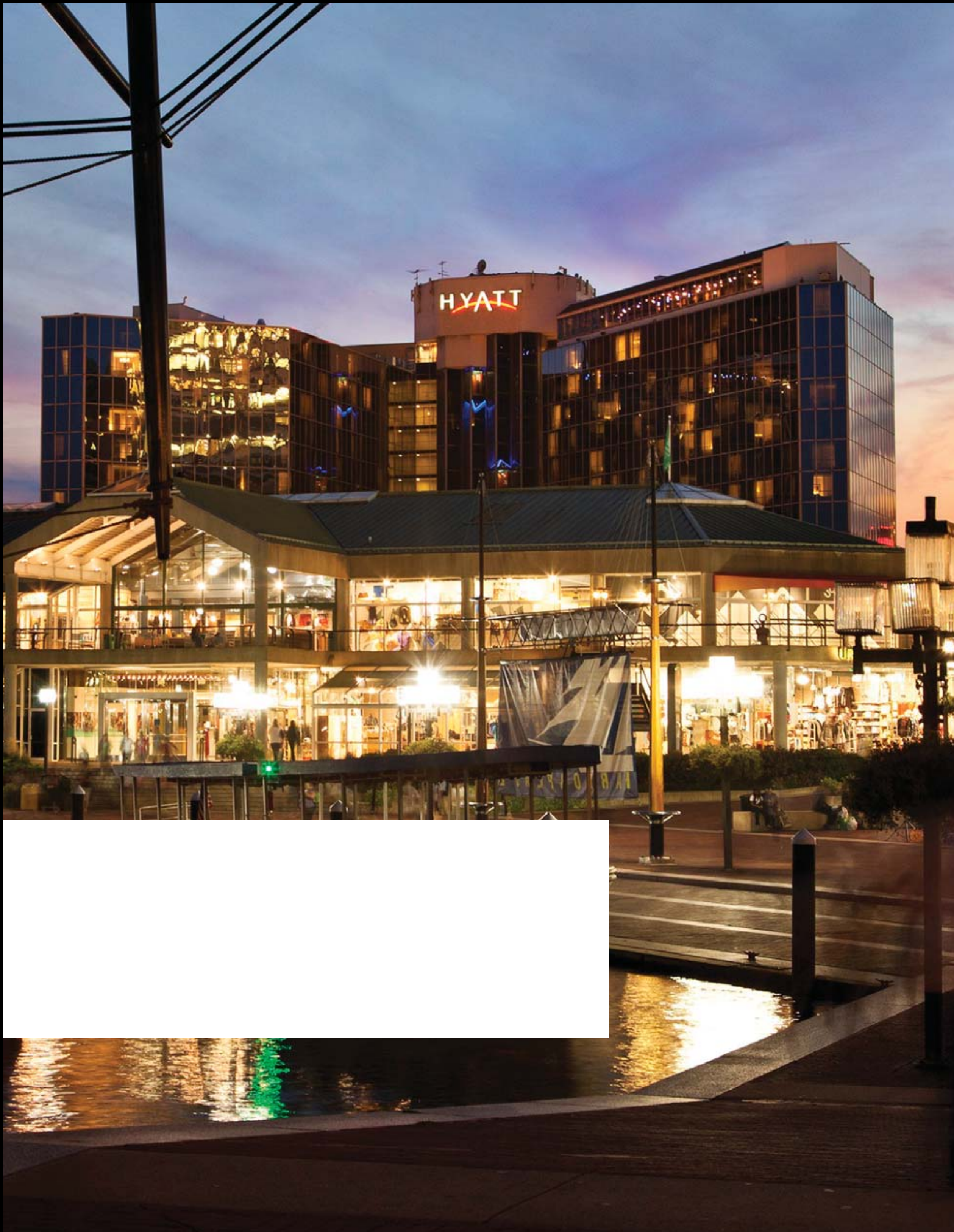
# Finer Points

## SUPERABRASIVE INDUSTRY REVIEW

**Featuring INTERTECH 2013 Registration Packet and Conference Details**



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INTERTECH Conference Registration Form

Tabletop Reservation Form

INTERTECH 2013 Educational Session

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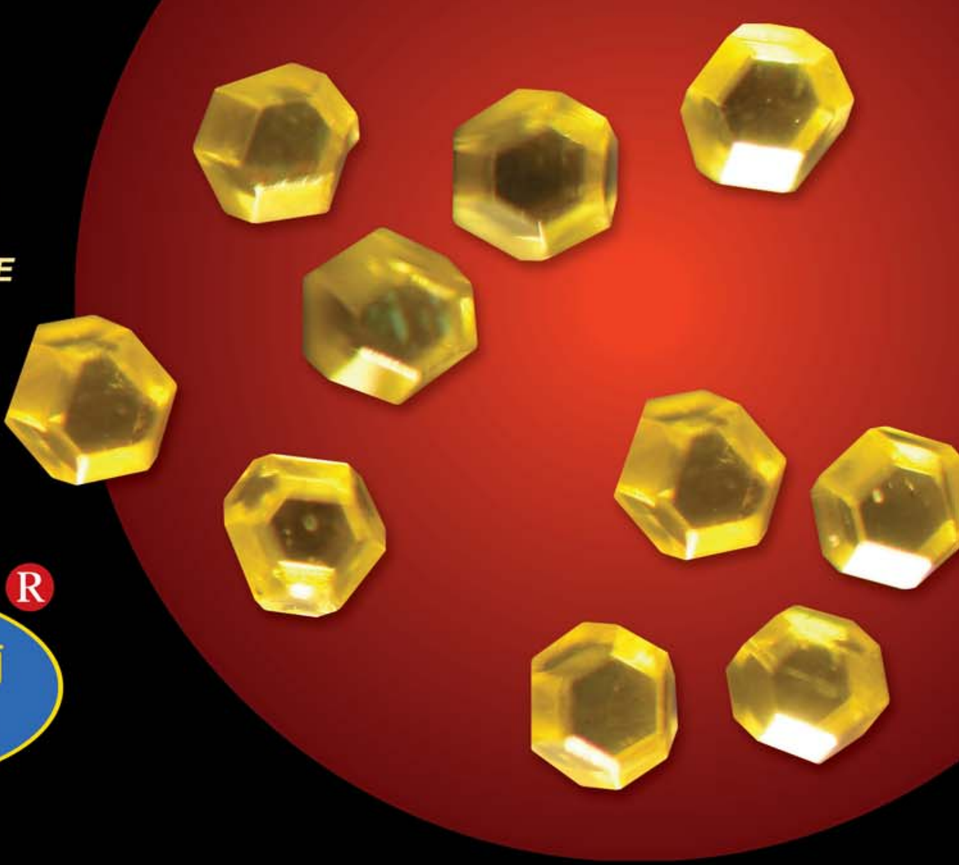

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### *COVER PHOTO*

INTERTECH 2013 will be held at the Hyatt Regency Inner Harbor May 6-8. This year's INTERTECH promises to be the best one ever held, with exceptional Keynote addresses and topics on diamond and cubic boron nitride (cBN), new product development and application innovations, especially on exotic materials used in all industries.

***FINER POINTS*** is the longest running publication devoted exclusively to the understanding, selection and application of diamond, cubic boron nitride and related materials. It is edited for recipients who are involved in some way with these "superabrasives", either as providers of the materials, producers of products containing the materials or users of these products (e.g., grinding wheels, dressing tools, drill bits, saw blades, sawing wires, cutting tools, polishing compounds, CVD film products, etc.).

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# A Finer Point of View…

As I begin my term as President of the Industrial Diamond Association of America (IDA) I am both honored and a little bit awed. Honored, because my peers chose me to lead this Association and awed because I have such respect for the Presidents who have come before me. Since 1946 there is a long list of Presidents including scientists, innovators and leaders in the diamond industry. To be in that distinguished company is a tremendous honor and I take the responsibility very serious. To lead an Association that has been such an important part of our industry for almost seven decades presents its own set of challenges and opportunities. There is no doubt the diamond industry of today is quite different than 67 years ago. Most companies in our Association are not just privately owned diamond businesses anymore; they are large corporations and multifaceted organizations representing the entire business spectrum of abrasive manufacturers, end users, suppliers, machine tool builders and toolmakers. In fact, we are not just the "diamond" industry we are now the "superabrasives" industry which encompasses diamond, cubic boron nitride, polycrystalline materials, CVD diamond, Nanodiamond and every related product and spin off from these "super" abrasives. The characteristics and properties of these materials have extended applications beyond the simple machining and grinding of 1946 to unimagined applications in 2013. In 1946, could anyone imagine diamond prosthetics, laser windows, nanodiamond carrying cancer killing drugs, computer disc texturing, blood filters, optics or the myriad other uses seen across all industries today. Yes, the diamond industry has changed and the IDA has not only changed with it, but leads the way in growing the industry. This May the IDA will host its sixth INTERTECH conference on superabrasives and their applications. This conference has become the international standard for technical research, new product introductions, application development and education on superabrasive materials. Each year INTERTECH has more to offer and 2013 will be even more impressive. This year there will be an added emphasis on the aerospace and defense industries due to the heavy use of exotic materials in components used in aerospace. In aerospace, superalloys, titanium, composites and others materials are critical because they are lightweight, strong and temperature resistant. The very properties that make them this way also make them extremely difficult to machine and grind… Enter superabrasives. Diamond and cubic boron nitride (cBN) are the only abrasives and cutting tool materials that can cost effectively finish these exotic components with no scrap and maintain part integrity during the manufacturing process. INTERTECH 2013 will feature papers related to the new technological developments as well as the innovative processes that are changing the face of manufacturing as we know it ... If you want to be a part of the changing face of manufacturing, then I will see you at INTERTECH 2013. Come join the leading companies, researchers and manufacturers from around the world ... It will be an experience you will remember the rest of your career!

**PRESIDENT**
Mike Mustin

Sincerely,

Mike Mustin
Industrial Diamond Association of America

Industrial Diamond Association of America, Inc.

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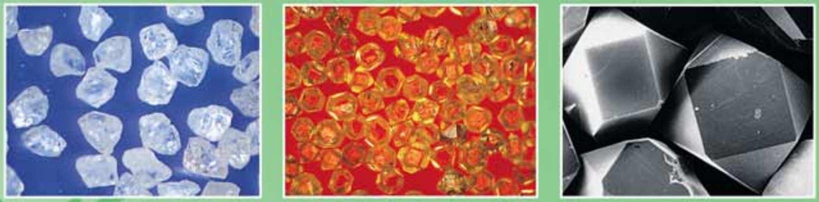

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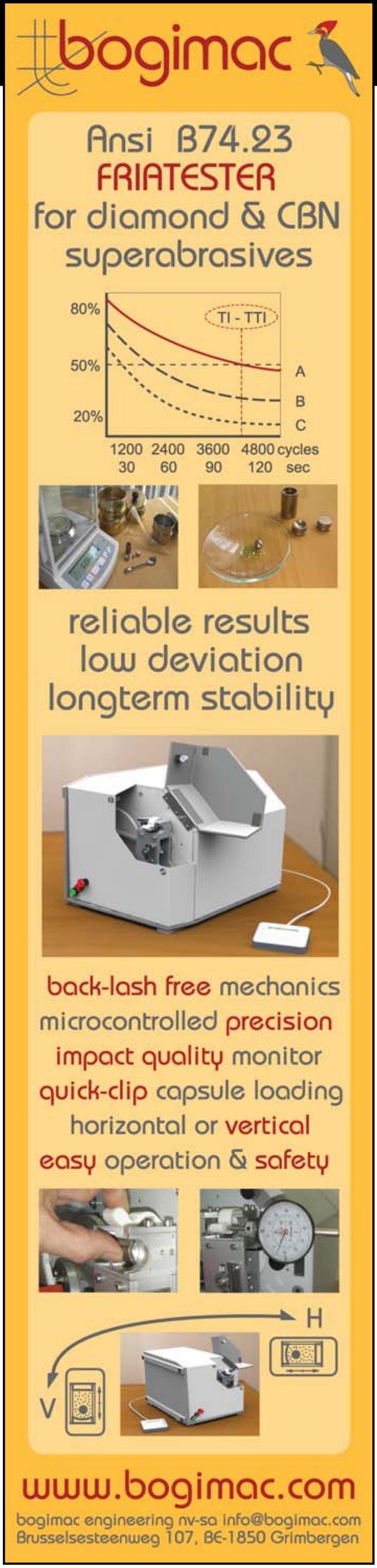
# Materials versus Materials ... And The Winner Is ...

***TERRY KANE, Editor***

With INTERTECH just around the corner, I am reflecting on all this talk of exotic materials and how they are machined or ground. I love history and it fascinates me to go back and research items of interest, particularly about superalloys. A superalloy, or high-performance alloy, is an alloy that exhibits excellent mechanical strength at high temperatures, good surface stability, and corrosion and oxidation resistance. Recently I took a look at some historical articles on superalloys and it amazed me that they have been around for so long. I guess I just took for granted they were created recently ... If your recent is around 1930 then you can still call these materials recently created! With aerospace demands, metallurgy in the 30's and 40's had moved into the stronger corrosion resistant alloy of stainless steel. Stainless steels have high ductility, low yield stress and relatively high ultimate tensile strength, when compared to typical carbon steel. Stainless steel became the specific material from which other superalloys have developed, although during that time alloy development was along conventional lines of strengthening of ferrite steels. In the 1940's investment casting of cobalt base alloys significantly raised operating temperatures for superalloys. A superalloys base alloying element is usually nickel, cobalt, or nickel-iron. Typical applications are in the aerospace, industrial gas turbine and marine turbine industry, e.g. for turbine blades for hot sections of jet engines, and bi-metallic engine valves for use in diesel and automotive applications. Crucial material properties are fatigue life, phase stability, as well as oxidation and corrosion resistance. The invention and early application of materials classified as superalloys started in the 1930's, with alloy development exploding in the 50's and 60's and reports of processing increasing through 70's and 80's. I would offer that the processing increase reported in the 70's and 80's was more due to superabrasives matching superalloys. Those decades saw the rapid growth and application development of industrial diamond, cubic boron nitride (cBN) and polycrystalline diamond and cBN classified as superabrasive ***Materials***.

Today, superalloys of Inconel, Waspalloy, Hastelloy, Haynes Alloys and other similar materials are used extensively in aerospace for everything from turbine blades to jet engines. There are also other difficult to machine and grind materials such as titanium, ceramics, composites, bimetals, carbon fiber composites and high silicon aluminum used for other components in aerospace and other manufacturing industries. These ***Materials*** can be found in everything from automotive engines and transmission components to propellers, airframes and landing gear. To cost effectively machine and grind these components with tighter tolerances, higher production rates and reduced scrap only superabrasives can meet the challenge. INTERTECH 2013 will show ***Materials versus Materials ... And The Winner Is ... Manufacturing Operations!***



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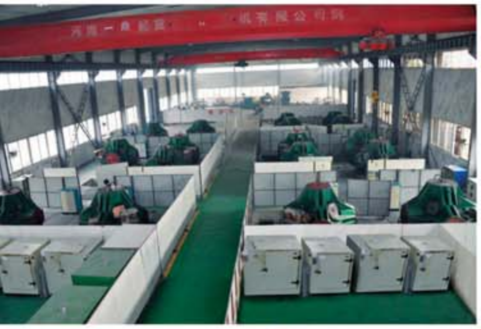
# THE FUTURE OF SUPERABRASIVES

Mr. Han Jun, President and CEO of BESCO Superabrasives
Mr. Chris Winkel, President and CEO of WWSA
Mr. John Chalvadakis, Operations Manager of WWSA

- WWSA (Worldwide Superabrasives, LLC) and our joint venture partner, BESCO Superabrasives, proudly announce the expansion of our manufacturing facility in Kaifeng, China.
- WWSA/BESCO, which was founded in 2008, has made a significant investment to increase our plant capacity by over 80% to 60,000 square feet to meet customer demand.
- Included in our expansion is our new superabrasive raw material catalyst production facility—continuing our goal of controlling every part of the superabrasive manufacturing process.
- WWSA/BESCO will produce over 140,000,000 carats of the highest quality resin bond industrial diamond and Cubic Boron Nitride (CBN) in 2012 at our Kaifeng factory.
- WWSA/BESCO will increase the expansion of our manufacturing capacity to no less than 180,000,000 carats by the end of 2013.
- Recent reports indicate that approximately 90% of superabrasive raw materials are manufactured in China—regardless of the name on the label.
- WWSA/BESCO is in a very powerful position for many years into the future as a manufacturer of the highest quality superabrasive raw materials and a provider of world-class technical support, product delivery and customer service.
- IN SUMMARY, WWSA/BESCO will play a significant role in the future of the supply of superabrasive raw materials.



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### INDUSTRIAL DIAMOND ASSOCIATION OF AMERICA (IDA)

# 67th ANNUAL MEETING

**2013 NEWLY ELECTED OFFICERS AND BOARD OF DIRECTORS**

*FRONT ROW LEFT TO RIGHT: David Spelbrink, Lieber & Solow - Director • Ed Galen, Cinetic CITCO/Gardner Abrasives - Past President • Mike Mustin, American Superabrasives - President • Troy Heuermann, 3M Abrasive Systems Division – Vice President • Keith Reckling, National Research Co. – Secretary/Treasurer*

*BACK ROW LEFT TO RIGHT: Steve Griffin, Engis Corp. – Director • Terry Kane, IDA Executive Director • Ben Williams, FACT USA – Director • Dave Simpson, Worldwide Superabrasives – Director • Scott Ries, Vollmer of America – Director • Aaron Nolan, Sumitomo Electric Carbide Materials Group – Director*
*Not Pictured: Joe Connolly, Element Six - Director*

The IDA held its Annual Meeting of 2013 in January at Disney's Grand Floridian Resort and Spa in Orlando Florida. Attendees were rewarded with some fantastic sights and great networking at a tremendous locale. The Business Meeting featured an Annual Report of the Association highlighted by working sessions that encompassed INTERTECH 2013 details and plans, Education Course content and structure, Membership initiatives and General Programs and Projects for the Association. The IDA welcomed new members Eastwind Lapidary, Inc. and H.C. Starck, Inc. to the Association. There was an excellent presentation from Michael Shaluly the President of MASTERCUT Tool Corporation. Michael gave a very interesting presentation of the Tool Considerations and Development for Aerospace with a historical timeline showing how tools have been developed from conventional to superabrasive for aerospace applications. Next attendees were entertained by an active presentation from Byron Sabol, Author of "Taming the Beast: Success with Difficult People". Byron spoke on "Transforming Contacts into Advocates" and judging by the interaction and discussion his points were well taken! Outgoing President Ed Galen awarded the President's Award to Dave Simpson of Worldwide Superabrasives for Dave's longtime dedication, hard work and commitment to the IDA. Dave's mother was present and able to enjoy seeing her son receive this award from a grateful Association. President Galen then introduced incoming 2013 President Mike Mustin and Mike spoke about his goals for this term and introduced his new Board.

Ed Galen (Left) Passes the Gavel of Leadership to IDA President Mike Mustin.

Dave Simpson, recipient of the President's Award shared the moment with his Mother.

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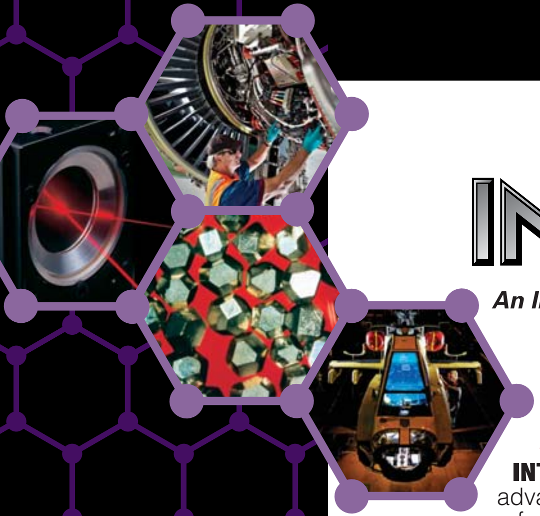

# INTERTECH 2013

*An International Technical Conference on Diamond, Cubic Boron Nitride and their applications.*

*www.intertechconference.com*

Hyatt Regency Baltimore Harbor
BALTIMORE, MARYLAND USA
May 6, 7 & 8, 2013

## WHAT IS INTERTECH 2013?

**INTERTECH 2013** is the Biennial International Conference dedicated to technological advancement and application development with an emphasis on increased productivity and performance using industrial diamond, cubic boron nitride, CVD diamond, polycrystallines and related materials classified as superabrasives. In **2013 INTERTECH** will focus on superabrasive applications and developments specific to the Aerospace and Defense industries. The reason for this focus is the expanded use of exotic materials used in the manufacturing processes for aircraft and defense systems. These exotic materials like superalloys, ceramics, high silica aluminum, composites and others are very light and strong but because of their composition are extremely difficult to machine and grind when manufacturing parts and components. In order to maintain productivity and process improvements, superabrasives need to be used in all manufacturing operations. The characteristics and properties of superabrasives allow for more precision, less scrap and no metallurgical damage on the finished parts. These results are extremely important in all industries, but critical in the aerospace industry. This conference is designed to provide a blend of commercial and technical topics and serve as a global "meeting of the minds" for technologists and business leaders. Historically, **INTERTECH** has been the most successful conference held on superabrasives, drawing global audiences from commercial and scientific communities with myriad disciplines. **INTERTECH 2013** will continue with that prevailing mission to be the largest, most expansive conference ever conducted in this industry. **INTERTECH 2013** will have global leaders in Research, Superabrasive Synthesis, Manufacturing and Application Development of superabrasives in attendance. Discover and share the most significant product developments and new applications in superabrasive technology at **INTERTECH 2013**!

## WHY ATTEND INTERTECH 2013?

Diamond, Cubic Boron Nitride (cBN), polycrystallines, CVD Diamond, know as “superabrasives” are making greater strides in most industries. Today, superabrasives or ultra-hard materials are not only serving as abrasives for material removal, but also acting as wear materials, heat sinks, knives, laser windows, heat shields for spacecraft, prosthetics, nanodiamond vehicles to carry disease fighting drugs and other groundbreaking applications. These superabrasives are making it possible to economically use workpiece materials such as superalloys, high tech ceramics, metal matrix composites, bimetals and many more in manufacturing processes. Especially in Aerospace we have seen the need for development of lighter and stronger materials from airframes to turbine blades. These materials are finding their way into other industries like power generation & automotive that must meet the requirements of lighter and stronger components for better performance over longer periods of time. Economics now demand lighter and more fuel efficient airplanes, cars and trucks across the entire transportation industry. Leading manufacturers and service providers have made a major commitment to take full advantage of the properties of diamond and other ultra-hard materials in their processes and applications. New workpiece materials, groundbreaking uses and an increased demand for productivity have heralded the need for superabrasives in every application possible. Machine tools are now being designed to take full advantage of superabrasive cutting tools, wheels and blades and this is just the beginning. Application of superabrasives has grown from the first use of natural diamond to grind tungsten carbide in the early 1940's to a broad range of high production applications across many manufacturing and service industries. From grinding and machining of superalloys and high-tech ceramics in aerospace and defense operations to metalworking of hardened steel, bi-metals or metal matrix composites in automotive as well as the sawing or drilling of stone and concrete or new uses of nanodiamond and CVD diamond & cBN, literally every industry is seeing the benefits of diamond and other ultra-hard material properties. Industries have made great strides by increasing productivity, reducing manufacturing & operating costs and implementing new technology. Whether it's the processing of stone from huge quarries, drawing wire, providing laser windows, shaping wood and laminates, grinding glass, texturing the close tolerances for the discs in electronic hard drives, providing medical breakthroughs in prosthetics or nanotechnology, growing large single crystals or coating base materials with diamond film, superabrasives are industry's choice for myriad solutions and cost effective processes. Much of this explosive growth has occurred in the last three decades. It is vital for continued prosperity that every company and individual, working or doing business in this burgeoning industry, devotes more time and resources to user education and application development.

**INTERTECH 2013** has the unique position of global sponsorship and participation, bringing together technical and commercial experts with research and academic scientists to discuss applications, technical innovations and industry trends that will shape the future. **INTERTECH 2013** will serve as an international forum for all participants to meet and focus on specific issues related to superabrasive use with common goals of increased productivity, new technological development and reducing overall business costs.

*Photos of Baltimore for INTERTECH 2013 courtesy of Baltimore Convention & Tourism Bureau.*

## Mission Statement

"**INTERTECH** conferences will serve as an international forum on new technology for diamond, cubic boron nitride (cBN) and other related materials classified as superabrasive or ultra-hard materials. **INTERTECH** will educate attendees and disseminate research and application development information covering these materials. **INTERTECH** will host all global manufacturing, technical, research, academic, commercial and end user organizations to share scientific breakthroughs and innovations. **INTERTECH** will adhere to the mission of blending technical innovation, research and product development with the ultimate focus on end user application."

## Key Conference Features

- Technical and application presentations from all areas of interest to evaluate growth opportunities of diamond, cBN and other ultra-hard materials with a focus on performance and productivity
- Conference focus in Aerospace and Defense industries and their leading edge manufacturing material requirements
- Outstanding venue at the Hyatt Regency Inner Harbor in Baltimore, Maryland USA, a great location with excellent weather in May of 2013. Baltimore is an historical city less that a one hour drive to Washington D.C. USA!
- A unique occasion to interact with technical and business leaders, scientists, peers, suppliers, academia, manufacturers, tool fabricators, machine tool builders and end users within the structure of a Global Technical Conference
- Reception to meet other attendees, presenters and business leaders
- Opportunity to hear experts from diverse technologies and to personally interact with all presenters and attendees
- Tabletop displays and exhibitions from leading companies in the industry with time to discuss products and solutions
- Keynote speakers from major Aerospace and Defense companies
- Educational Session will be offered for users, engineers, sales, marketing and all others wanting to learn about the superabrasives industry, products and applications. This session is especially designed by the leading companies in the industry on superabrasive materials, tooling, research and applications. At INTERTECH 2011 when this was introduced, over 80 attendees praised this session as the "Best educational program they had ever seen on superabrasives."
- Chance to evaluate emerging technologies and materials for your own application situations
- Three full days of technical and commercial papers
- An open evening where attendees can take full advantage of the splendid sights, entertainment, dining and tourist attractions of the magnificent city of Baltimore
- Opportunity to meet with leaders from major research companies, suppliers, end users and peers for networking and discussion
- Three days of wonderful meals, camaraderie and conversation
- All papers considered for publication in Finer Points Magazine
- Complimentary Proceedings to all attendees ... And much more!

## INTERTECH Administrative Details

### NO SMOKING PLEASE

Smoking is prohibited in all meeting facilities.

### CLIMATE FOR BALTIMORE, MARYLAND USA IN MAY

Average Temperature: 63°F (17.2°C)
Average Low Temperature: 52 °F (11°C)
Average High Temperature: 74°F (23°C)
Evenings in May are cool and could require a light jacket or sweater.

### CONFERENCE DRESS

Recommended dress for the conference attendees is business casual. Gentlemen presenters are asked to wear a jacket and ladies suitable business attire. Rooms are air conditioned, so a sweater or a jacket is recommended.

### SPECIAL ASSISTANCE

Prior to the meeting, please call or email IDA Headquarters (Tel: 614-797-2265, email: tkane-ida@insight.rr.com) if any special assistance is required for any attendee. On-site, guests requiring special assistance should contact a member of the **INTERTECH 2013** staff at the Conference Desk.

### SESSION RECORDINGS & PHOTOGRAPHY

***Due to proprietary information and as a courtesy to our speakers, no audio and video recording or photography of the presentations may be made*** without the prior written permission of the Industrial Diamond Association of America (IDA). All **INTERTECH 2013** presentations are copyrighted to the Industrial Diamond Association of America and the IDA reserves the right to prohibit the recording of presentations or photography even if it is intended for personal use.

# INTERTECH 2013* Event Snapshot

Baltimore, Maryland USA ● May 6-8, 2013

## MONDAY, MAY 6

CONTINENTAL BREAKFAST 7:00-8:00 am • REGISTRATION 8-12 Noon

8:00-8:45 am – Keynote Speaker Dr. Dianne Chong, VP Material & Process Technology, Boeing Research & Technology

| | | |
|---|---|---|
| MORNING | 8:45-12 Noon<br>AEROSPACE SESSION<br>• Designs for Aerospace Applications<br>• Machining & Grinding<br>Exotic Materials | 8:45-12 Noon<br>ADVANCEMENTS IN SUPERABRASIVE MATERIALS<br>• Diamond & Cubic Boron Nitride Mesh<br>• Polycrystalline Diamond & Cubic Boron Nitride<br>• CVD Diamond and cBN |

12 Noon - 1:00 pm LUNCH

1:00 -1:45 pm – Keynote Speaker Dr. Bradford Pate, Research Physicist & Head of Diamond Materials Group, Naval Research Labratory

| | | |
|---|---|---|
| AFTERNOON | 1:45 pm - 4:45 pm<br>AEROSPACE SESSION<br>• Superfinishing<br>• Fine Lapping<br>• Double Disc Grinding<br>• Other | 1:45 pm - 4:45 pm<br>ADVANCEMENTS IN SUPERABRASIVE MATERIALS<br>• Machine Design<br>• Grinding Wheel Development<br>• Cutting Tool Advancements |

Evening

6:00 pm - 8:00 pm
WELCOME RECEPTION – Hors d'oeuvres & Cocktails

## TUESDAY, MAY 7

CONTINENTAL BREAKFAST 7:00-8:00 am • REGISTRATION 8-12 Noon

8:00-8:45 am – Keynote Speaker Dr. Roger Doughty, Ceramic Matrix Composites (CMC) Technology Leader, GE Aviation

| | | |
|---|---|---|
| MORNING | 8:45-12 Noon<br>ADVANCEMENTS AND APPLICATION OF AEROSPACE MATERIALS<br>• Carbon Based • Titanium<br>• Thermal Sprays • Superalloys<br>• Composites • Ceramics | 8:45-12 Noon<br>ACADEMIA & RESEARCH<br>• New Crystal Development<br>• Polycrystalline cBN<br>• Polycrystalline Diamond<br>• CVD Diamond • Optics<br>• Electronics • Medical |

12 Noon - 1:00 pm LUNCH

1:00 -1:45 pm – Keynote Speaker from Major Global AEROSPACE Technical/Research Organization

| | | |
|---|---|---|
| AFTERNOON | 1:45 pm - 4:45 pm<br>APPLICATION CASE HISTORIES FOR SUPERABRASIVES ON AEROSPACE COMPONENTS<br>• Repair/Refurbishing • Airframes<br>• Turbine Buckets • Jet Engines<br>• Stablizers • Landing Gear | 1:45 pm - 4:45 pm<br>SUPERABRASIVE TECHNOLOGY<br>• Grinding<br>• Machining<br>• Drilling • Finishing<br>• Machine Tools |

Evening

6:00 pm - 11:00 pm
OPEN EVENING or OPTIONAL DINNER CRUISE EVENT

## WEDNESDAY, MAY 8

CONTINENTAL BREAKFAST 7:00-8:00 am • REGISTRATION 8-12 Noon

8:00-8:45 am – Keynote Speaker Dr. Robert Hazen, Research Scientist at The Carnegie Institution of Washington's Geophysical Labratory

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|---|---|---|
| MORNING | 8:45-12 Noon<br>CONCURRENT EDUCATIONAL SESSION<br>• Superabrasive History<br>• Abrasive Types & Properties<br>• Diamond & cBN Grinding | 8:45-12 Noon<br>CONSTRUCTION, MINING, ENERGY, OPTICS, MEDICAL, WIRE AND OTHER INDUSTRIES USING SUPERABRASIVES<br>• Prosthetics • Wear Parts<br>• Sawing • Drilling |

12 Noon - 1:00 pm LUNCH

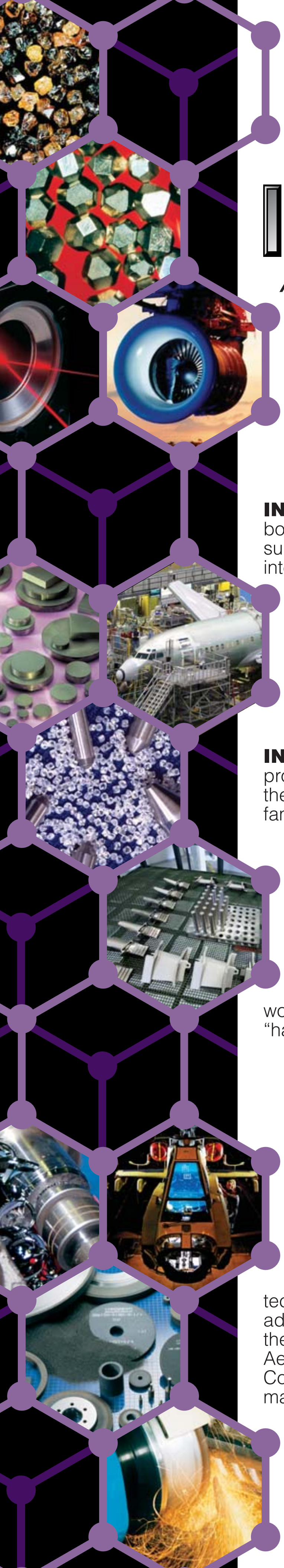
1:00 -1:45 pm – Keynote Speaker

| | | |
|---|---|---|
| AFTERNOON | 1:45 pm - 4:45 pm<br>CONCURRENT EDUCATIONAL SESSION<br>• Superabrasive Machining & Drilling PCD & PCBN<br>• Abrasive Types & Properties<br>• Non Abrasive Uses | 1:45 pm - 4:45 pm<br>ENERGY, OPTICS, MEDICAL, WIRE, AND OTHER INDUSTRIES USING SUPERABRASIVES<br>• Wire Drawing • Polishing<br>• Knives • Gears<br>• Specialty Machine Tools |

Evening

OPEN EVENING

*** PROGRAM SUBJECT TO CHANGE DEPENDING ON CONFIRMED SPEAKERS, SELECTED ABSTRACTS and PAPERS**



## The Industrial Diamond Association of America Announces INTERTECH 2013 May 6, 7 & 8

# INTERTECH 2013

**An International Technical Conference on Diamond, Cubic Boron Nitride and their applications.**

**www.intertechconference.com**

Hyatt Regency Baltimore Harbor
BALTIMORE, MARYLAND USA
May 6, 7 & 8, 2013

## INTERTECH 2013 WILL BE THE FEATURED CONFERENCE FOR NEW TECHNOLOGY AND APPLICATION DEVELOPMENT OF SUPERABRASIVES AND SUPER-HARD MATERIALS FOR AEROSPACE & DEFENSE APPLICATIONS

**INTERTECH 2013** is the leading International Technical Conference on industrial diamond, cubic boron nitride, polycrystallines, CVD diamond, Nanodiamond and other materials classified as superabrasives and ultra-hard materials. **INTERTECH 2013** will feature leading experts representing international suppliers, manufacturers, research facilities, academia, end-users, machine tool builders and the scientific community with a focus on Aerospace & Defense industry applications. These areas were selected as our focus due to the high level of exotic materials (titanium, superalloys, high silicon aluminum, ceramics, etc.) used in the manufacture of aerospace and defense components. Those materials can only be effectively machined and ground with superabrasive tooling."

## COMPREHENSIVE EDUCATION SESSION

### *"Superabrasive Materials, Principles & Applications"*

**INTERTECH 2013** will once again offer, a one-day session covering the history, characteristics and proper application for diamond and cubic boron nitride materials. This updated session will address the essentials of superabrasives for those new to the industry or those who wish to become more familiar with superabrasive materials and applications.

**BALTIMORE HARBOR IS A MAJOR ATTRACTION ...** This sensational event will be held in Baltimore, Maryland USA at the Hyatt Regency Inner Harbor, conveniently located in the centerpiece of downtown Baltimore. Attendees of **INTERTECH** will want to set some time aside to visit Washington DC the capital of the United States. Less than an hour drive makes Washington a major attraction for attendees. Famous for its historical buildings, the Smithsonian Institute, memorials, statues and shrines, no trip to this vicinity would be complete without a tour of Washington DC for an amazing once in a lifetime experience. **INTERTECH 2013** will be a rewarding technical experience complimented by a trip to the world-famous and historic cities of Baltimore and Washington DC that makes it a "have to attend" event!

*Photos of Baltimore for INTERTECH 2013 courtesy of Baltimore Convention & Tourism Bureau.*

# CALL FOR PAPERS!

**YOU CAN BE A PART OF THIS EXCITING EVENT! ...** We are now soliciting commercial and technical papers of approximately 30-45 minutes in length that address the research of these super-hard materials as well as the dynamics and application of superabrasive systems in Aerospace and other industries as well (see: Areas of Consideration) with a focus on new technology, tooling, workpiece materials, machines and applications related to increased **PRODUCTIVITY** and **PERFORMANCE**. Consideration for papers is being made at this time and abstracts are now being accepted; contact us today to be considered. This will be the most comprehensive event ever held on superabrasive materials for Aerospace & Defense and similar industries!

## AREAS OF CONSIDERATION FOR PAPERS WITH A MAJOR FOCUS ON SUPERABRASIVES USED IN AEROSPACE & DEFENSE APPLICATIONS

**PART & COMPONENT MATERIALS**
- Ceramics
- Composites
- Glass
- Superalloys (Rene, Hastelloy, Waspaloy, Inconel, Haynes alloys, Incoloy, others)
- High Silicon Aluminum
- Thermal Sprays
- Titanium
- Other

**AEROSPACE**
- Manufacturing
- Rebuilding
- Optics
- Other

**DEFENSE**
- Naval Systems
- Arms & Armament
- Parts & components
- Vehicles
- Rebuilding
- Other

**MACHINE TOOLS**
- Development
- Innovations
- Advancements
- Superabrasive

**TOOLING**
- Grinding Wheels
- Cutting Tools
- Drill Bits

**RESEARCH & DEVELOPMENT**
- New Crystals & Abrasives
- New Coatings
- Bond Development
- Testing/Gauging
- Tool Fabrication
- Materials
- Tooling
- Application Development
- Film (CVD & PVD)
- Magnetorheological Finishing
- Electrolytic In-process Dressing (ELID) Mirror-Surface Grinding
- Nanotechnology

**OTHER NEW TECHNOLOGY & APPLICATION DEVELOPMENT**

## OTHER INDUSTRIES AND TOPICS FOR CONSIDERATION

**AUTOMOTIVE**
- Manufacturing

**CONSTRUCTION/ HIGHWAY**
- Concrete Aggregates
- Highway/Runway
- Renovation
- Block Grinding/Polishing

**ELECTRONICS**
- Disc Texturing
- Wafer Mfg.
- Polishing
- Optic Windows
- Semiconductors
- Heat Sinks

**EMERGING TECHNOLOGY**
- CVD Diamond
- Nanodiamond
- New Crystals
- Coatings

**GLASS**
- Lens Generation
- Polishing
- Pencil Edging

**MACHINE TOOLS**
- Advancements
- Superabrasive Adaptation

**MEDICAL**
- Surgical Knives
- Prosthesis Fabrication

**MINING/DRILLING**
- Drills & Bits
- Application

**OPTICS**
- Polishing
- Lens Generation

**RESEARCH & DEVELOPMENT**
- HPHT Technology
- Pressing Equipment

**TOOLING**
- Grinding Wheels
- Cutting Tools
- Sawblades
- Drill Bits

**WEAR PARTS**
- Rests
- Anvils
- Nozzles

**WIRE DRAWING**
- Single Crystal
- PCD
- Manufacturing

**WOODWORKING**
- Hard Woods
- Fiberboard
- Laminates
- Composites

**OTHER NEW TECHNOLOGY & APPLICATION DEVELOPMENT**

## INTERTECH 2013 ON-LINE

As you can see by the areas for paper consideration, diamond and cubic boron nitride are not just being used as abrasives in traditional applications. Today, superabrasives and ultra-hard materials are making inroads in electronics, medical, cosmetics and literally every other industry where the characteristics of diamond and cubic boron nitride can affect performance or provide higher strength or new capabilities. As an **INTERTECH** attendee you will learn how these new products and applications are being developed, where super-hard materials are being used and how you can apply these systems in new and innovative ways.

Visit the **INTERTECH 2013** website: www.intertechconference.com for additional information on:

- CONFERENCE REGISTRATION
- SESSIONS & SCHEDULES
- SPEAKERS & TOPICS
- ORGANIZING COMMITTEE CONTACTS
- ABSTRACT SUBMISSION
- PAPER GUIDELINES
- TABLETOP DISPLAYS
- LOCATION & TRAVEL
- VISAS & INVITATION LETTERS
- KEYNOTE ADDRESSES

**On-Line submission of abstracts is now available at www.intertechconference.com. If you wish to present a paper, you can also send a one or two paragraph abstract of your paper topic via email, fax or regular post to: Terry M. Kane, Chairman • INTERTECH 2013 • P.O. Box 29460 • Columbus, Ohio 43229 • Telephone: 614-797-2265 • Fax: 614-797-2264 • e-mail: tkane-ida@insight.rr.com**

### *LATE SUBMISSION OF PAPERS CAN ONLY BE ACCEPTED AFTER APRIL 1, 2013 IF SUBMITTED DIRECT TO INTERTECH 2013 CHAIRMAIN*

**At: tkane-ida@insight.rr.com • Fax: 614-797-2265 • Call with Questions: 614-797-2265**

Come join us! **INTERTECH 2013** has the tradition of being the most comprehensive event held on superabrasives and ultra-hard materials. **(PLEASE PRINT CLEARLY AND FILL OUT COMPLETELY. *INCLUDE ABSTRACT*)**

Name: ______________________________

Title: ______________________________

Date: ______________________________

Company: ______________________________

Address: ______________________________

City: ______________________ Country: ______________________

State/Province: ______________________ Zip/Postal Code: ______________________

Phone: ______________________ Fax: ______________________

Email: ______________________ Website: ______________________

## INTERTECH 2013 VENUE

**http://baltimore.hyatt.com/hyatt/hotels/index.jsp**

**In the continuing effort to maintain a venue of interest and attraction for attendees, INTERTECH 2013 is scheduled for Monday May 6, Tuesday May 7 & Wednesday May 8, 2013 at The HYATT REGENCY BALTIMORE ON THE INNER HARBOR in Baltimore Maryland USA**

Nestled squarely in the heart of downtown, this Four-Diamond Inner Harbor hotel offers a luxury gateway to this enchanting waterfront town. See all the breathtaking sights of the Inner Harbor, or explore the wonders of the sea at the National Aquarium. Savor unique menu items from across the United States at Bistro 300 or enjoy the modern outdoor pool with sundeck, jogging track, basketball court, tennis courts and a complete Fitness Center with 24 hour access. The crown jewel of downtown Baltimore is the Inner Harbor. The vibrant and beautiful waterfront is home to dozens of shops, eateries and attractions, all within walking distance of Hyatt Regency. In just a few city blocks, you can explore wildlife from the deep and down under at the National Aquarium, have a 360-degree IMAX experience at the Maryland Science Center, or wander through the pop culture icons of your past at the new Geppi's Entertainment Museum. There is a staggering array of restaurants, eateries and food vendors scattered throughout Harborplace and the surrounding area. Stylish guestrooms, dazzling meeting facilities and legendary service make The Hyatt Regency Baltimore Harbor the preferred choice for **INTERTECH 2013** ...

### HOTEL RESERVATIONS FOR INTERTECH 2013

Register online at www.intertechconference.com.

*Excellent technical presentations, business opportunities with global executives and a visit to one of the world's most interesting and exciting cities, INTERTECH 2013 is an event you will value for years to come.*

## INTERTECH 2013 DINNER CRUISE

***Sign Up Now for an "Optional" Baltimore Spirit of Baltimore Dinner Cruise on the Inner Harbor, TUESDAY, MAY 7, 6:30 PM -10:00 PM 2013 Experience Baltimore from the most unique point of view… From the water! Join us under the stars and out on the glistening harbor for an evening filled with a delicious dinner, music and exceptional service, all in a festive ambiance - with of course, THE BEST views that Baltimore has to offer! Quite simply, the Spirit dinner cruise is the perfect night out.***

Spirit Dining Cruises in Baltimore sail along the Patapsco River past **Ft. McHenry** and the **Francis Scott Key Bridge**. World-famous **Fort McHenry**, a late 18th century star-shaped fort, is known as the birthplace of America's national anthem, the "Star Spangled Banner." The Fort stood as the guardian of Baltimore's Harbor during the War of 1812 when the British bombarded the Fort for 25 hours with a 60 ship fleet. After this tremendous Battle, the American flag still stood at the Fort. This inspired a young poet and lawyer, Francis Scott Key, to write what was to become our national anthem. Other famous sites are **Fells Point** with quaint brick row homes, boutiques, restaurants, taverns and brick roads. The **Living Classrooms** is the oldest standing brick building in Baltimore, made with round corners. The Dutch built this and used round corners because of an old superstition that evil spirits couldn't hide behind round corners. ***This will be a special evening that you will talk about for years to come… The cost to INTERTECH attendees is only $95 USD, which includes the meal, riverboat cruise, entertainment and tour.*** There will be an additional cash bar so you can purchase alcoholic beverages. **Go to www.intertechconference.com and click on the "registration" link to sign up on-line or download the registration form and fax it in today …** ***DEADLINE FOR REGISTRATION IS APRIL 15, 2013***

# INTERTECH 2013 ORGANIZING COMMITTEES

Every **INTERTECH** we strive to improve all aspects of the conference. This year we not only will be offering the outstanding education session along with our outstanding technical sessions, but we also have improved the very focus of the conference by structuring the program around superabrasive materials used in Aerospace and Defense. To meet this challenge we have restructured the organizational committees for **INTERTECH**. This year the **INTERTECH** and the Industrial Diamond Association of America (IDA) are proud to introduce the three Committees that are ultimately responsible for putting together **INTERTECH 2013**. The three committees are the STEERING & PLANNING COMMITTEES and TECHNICAL ADVISORY COMMITTEE. These committees have been working together to produce the best combination of presentations and contributors to represent both the Technical and Practical Application sides of the superabrasive industry.

The Steering & Planning Committees change each **INTERTECH** and consist of notable business leaders from across the industry. They have dedicated their time and efforts to see that **INTERTECH 2013** is a success on every level from the promotional materials, venue & speakers to the program, tabletop exhibits and daily events. Their efforts constitute years of planning and coordination to bring about this International Event.

Photos courtesy of Boeing

## STEERING COMMITTEE

- **Troy Heuermann**, 3M ABRASIVE SYSTEMS DIVISION
- **David L. Edwards**, ACTION SUPERABRASIVE PRODUCTS, INC.
- **Edward E. Galen**, CINETIC LANDIS CORP - CITCO PRODUCTS
- **Joseph M. Connolly**, ELEMENT SIX
- **Stephen Griffin**, ENGIS CORPORATION
- **David Spelbrink**, LIEBER & SOLOW, COMPANY
- **Keith Reckling**, NATIONAL RESEARCH COMPANY
- **Aaron Nolan**, SUMITOMO ELECTRIC CARBIDE, INC. MATERIALS GROUP
- **Scott Ries**, VOLLMER OF AMERICA CORP.
- **Ben Williams**, FACT USA
- **R. Christian Winkel**, WORLDWIDE SUPERABRASIVES
- **David Simpson**, WORLDWIDE SUPERABRASIVES

***INTERTECH Chairman***: **Terry M. Kane**, Executive Director

***INTERTECH Meeting Planner***: **Kathy A. Kane**, Business Manager, INDUSTRIAL DIAMOND ASSOCIATION OF AMERICA, INC.

Photos courtesy of Lockheed Martin, Sikorsky Hellicopter, Pratt & Whitney and Northrop Grumman

## PLANNING COMMITTEE

- **David Spelbrink**, LIEBER & SOLOW, COMPANY – Co-Chairman
- **Scott Ries**, VOLLMER OF AMERICA CORP. Co-Chairman
- **Lucas Haugen**, ELEMENT SIX
- **Stephen Griffin**, ENGIS CORPORATION

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*Only through our patented nanotechnology can these results be achieved. All others are now obsolete.*

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These material architectures have never existed before on this planet. Seriously.

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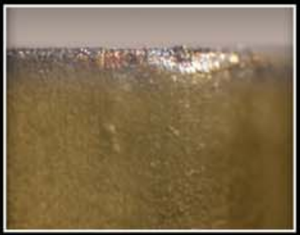
**WITH TuffTek®**



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- Nano engineered for unheard of performance.
- Tufftek® works with any insert no matter what it's geometry.
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Source: *CuttingTool Engineering* Magazine – October 2008.

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Making atoms work harder and smarter.™

# INDUSTRIAL DIAMOND ASSOCIATION OF AMERICA

## MEMBER COMPANIES

*Contact an IDA Member Company for superior products and services related to the superabrasives and ultra-hard materials industry.*
*IDA Members follow a strict code of ethics to guarantee quality and dependability.*

***Always buy from an IDA Member!***

**3M Abrasive Systems Division**
Website: www.mmm.com

**ABC & Warren/Amplex Superabrasives**
Website: www.saint-gobain.com

**Abrasive Technology**
Website: www.abrasive-tech.com

**Abrasivos Austromex, S.A. DE C.V.**
Website: www.austromex.com.mx

**Action Superabrasive Products, Inc.**
Website: www.actionsuper.com

**Advanced Abrasives Corporation**
Website: www.advancedabrasives.com

**American Superabrasives Corp.**
Website: www.diamonds-abrasive.com

**Anco Industrial Diamond Corp.**
Website: www.ancodiamond.com

**Apogee Precision Parts**
Website: www.natchain.com

**Asahi Diamond America**
Website: www.asahidiamond.com

**Bogimac NV-SA**
Website: www.bogimac.com

**Bruce Diamond Corp.**
Website: www.brucediamond.com

**Cdp Diamond Products Inc.**
Website: www.cdpdiamond.com

**Chardon Tool & Supply Co., Inc.**
Website: www.chardontool.com

**Cinetic Landis Corp -**
**Citco/Gardner Abrasives**
Website: www.citcodiamond.com

**Continental Diamond Tool Corp.**
Website: www.cdtusa.net

**Crystallume Engineered**
**Diamond Products**
Website: www.crystallume.com

**Darmann Abrasive Products**
Website: www.darmann.com

**Delaware Diamond Knives Inc.**
Website: www.ddk.com

**Desmond-Stephen Mfg Co.**
Website: www.desmond-stephan.com

**Dev Industrial Corp.**
Website: www.dev-group.com

**Diamond Associates**
Website: www.abrasivesmall.com

**Diamond Industrial Tools**
Website: www.todit.com

**Diamond Innovations**
Website: www.diamondinnovations.com

**Dianamic Abrasive Products Inc.**
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**Eastwind Lapidary, Inc.**
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**DMC-TECH, Inc.**
Website: www.dcm-tech.com

**Element Six**
Website: www.e6.com

**Eloquence Corporation**
Website: www.corporationwiki.com/New-York/New-York/eloquence-corporation/36629788.aspx

**Engis Corp.**
Website: www.engis.com

**FACT USA**
Website: www.wmstrading.com
Website: www.factdiamond.com

**Fort Wayne Wire Die Inc.**
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**Greenlee Diamond Tool Co.**
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**Iljin USA, Inc.**
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**Industrial Diamond Laboratories Inc.**
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**K & Y Diamond Ltd**
Website: www.kydiamond.ca

**Lach Diamond, Inc.**
Website: www.lachdiamond.com

**Lieber & Solow Co.**
**Lands Superabrasives Co.**
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Website: www.landssuperabrasives.com

**Lunzer Technologies, Inc.**
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**Megadiamond Inc.**
Website: www.megadiamond.com

**Morgan Advanced Materials & Technology**
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**National Research Co.**
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**Noritake Co Inc.**
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**Pinnacle Abrasives**
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**Superabrasives Inc.**
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**Syntech Abrasives Inc.**
Website: www.syntechabrasives.com

**Tomei Corp. of America**
Website: www.tomeidiamond.com

**US Synthetic Corporation**
Website: www.ussynthetic.com

**Ulbrich Stainless Steels &**
**Special Metals, Inc.**
Website: www.ulbrich.com

**Vollmer of America Corporation**
Website: www.vollmer-us.com

**Wemex Superabrasivos, S. DE R.L. DE C.V.**
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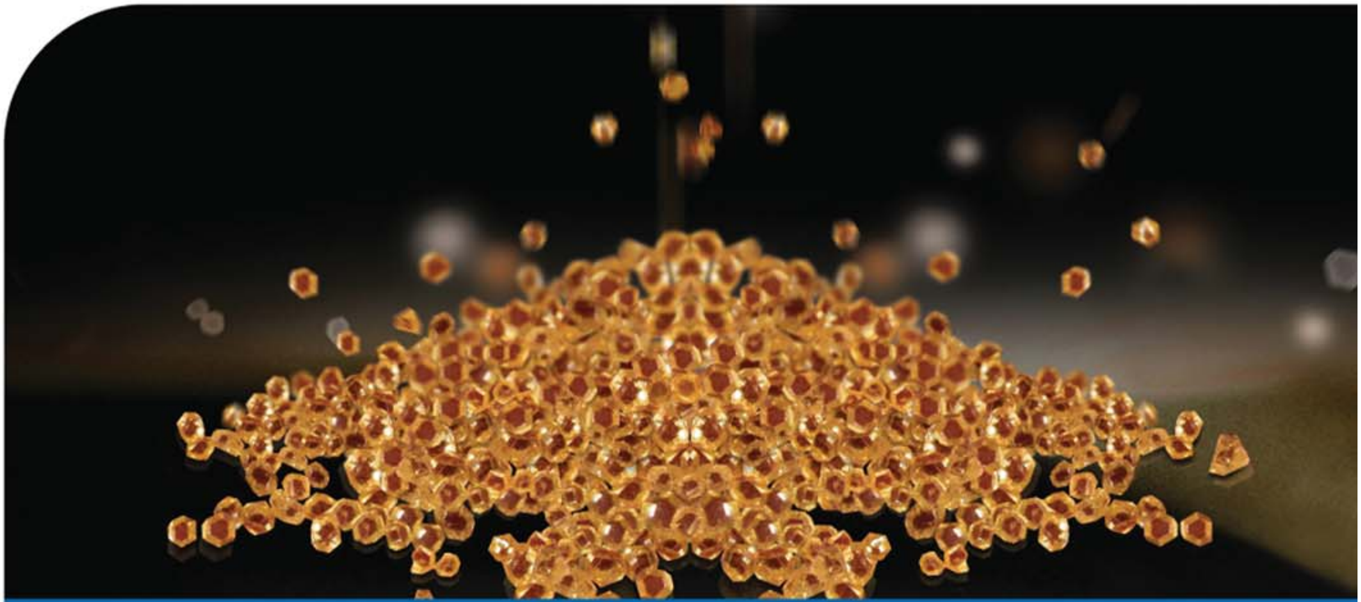

## Grit Products

- Best Solution for Longer Tool Life & Cutting Performance
- Excellent Thermal & Chemical Stability
- Outstanding Performance to Meet Customers' Needs

| | |
|---|---|
| **IMD** (Metal Bond) | IMD series are engineered to achieve high material removal rate as well as excellent surface finishing, especially for metal bond system. |
| **IRD** (Resin Bond) | IRD series show optimum performance in all bond systems from phenolic to polyimide resin. 30-56wt% cluster and spiky type Ni coating, as well as 50wt% Cu coating are available. |
| **IBN** (cBN) | IBN series are designed for grinding hardened ferrous and superalloy materials. IBN can be applied with a variety of bond systems. Ti and Ni coating are available. |
| **IMP** (Micron Powder) | IMP series are manufactured from premium quality raw materials by cutting edge micronizing techniques (tight PSD, shape and surface control). |
| **ISD** (Saw) | ISD series are available from bloky shape to angular shape to meet all requirements in stone and construction industries. Various Ti based coatings are available. |
| **IPD** (Premium Saw) | IPD series with the highest strength, thermal stability and micro-fracturing property is created by unique synthesizing technologies for the high end market in sawing and drilling. Various Ti based coatings are available. |

## Hard Materials

**Tungsten carbide rods and blanks are materials for machining tools such as endmills, drills and reamers in tooling as well as micro drills such as drill bits and router bits for electronics.**

01 | Excellent wear resistance and toughness by ultra fine WC grain sizes

02 | Various choices from micro(Dia 1.3) to macro(Dia 25.2)

03 | Manufactured by one step sintering-HIP process

## Cutting Tool Materials

- **Best Solution for Longer Tool Life**
- **Extreme Wear & Abrasion Resistance**
- **Excellent Thermal & Chemical Stability**

### ILJIN Polycrystalline Diamond for non-ferrous materials

- Application(Non-ferrous materials) : Al-Si Alloy, Copper Alloy, Carbide, Graphite, Wood, Plastics etc.
- Available Grades : CXL, CM, CMW, CFW, CUF, XUFII

### ILJIN Polycrystalline Cubic Boron Nitride for ferrous materials

- Application(Ferrous materials) : Soft Cast Iron, Hard Cast Iron, Hardened Steel, Powder Metal, Superalloy etc.
- Available Grades: SB95N, SB80, SB70, SB600, SB500, SB100

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[ ILJIN USA INC ] 652 N. Sam Houston Parkway E. Suite 140, Houston, TX77060 Tel. +1-281-448-5111 Fax. +1-281-448-5114

***Attendees, authors, speakers and the organizing committee represent the global participation for INTERTECH 2013 with 20% from Europe, 25% from the Asia and 55% from the Americas.***

**Company – Country – Global Region**

3M – USA – Americas
3M Abrasives Systems Division – Precision Grinding and Finishing – USA – Americas
A.L.M.T. Corp. – Japan – Asia
ABC Warren Superabrasives – USA – Americas
Action Superabrasive Products, Inc. – USA – Americas
Advanced Abrasives Corporation – USA – Americas
Advanced Science Institute RIKEN Saitama University – Japan – Asia
American Superabrasives Corporation – USA – Americas
Apogee Precision Parts – USA – Americas
Boeing Company – USA – Americas
Bogimac NV-SA – Belgium – Europe
Carnegie Institution, Geophysical Laboratory – USA – Americas
Case Western Reserve University – USA – Americas
CeramTec GmbH; SPK Cutting Tool Division – Germany – Europe
Changsha Shili Superhard Material Co., Ltd. – China – Asia
Christoffel Engineering – Switzerland – Europe
Chromalloy – USA – Americas
Cinetic Landis Corp. CITCO/Gardner Abrasives – USA – Americas
Conicity Technologies – USA – Americas
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Crystallume Engineered Diamond Products – USA – Americas
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# INTERTECH 2013 KEYNOTE SPEAKERS

## DIANNE CHONG, Ph.D.

***Vice President, Material & Process Technology, Boeing Research & Technology, The Boeing Company***

Dr. Dianne Chong is the Vice President of Materials and Process Planning in the Boeing Research & Technology organization in EO&T. In this position, she leads the organization responsible for development and support of materials & processes and manufacturing development for Boeing. Prior to this, she was the Director of Materials & Process Technology for Boeing Commercial Airplanes. Dr. Chong was also the Director of Strategic Operations and Business for IDS Engineering. In this capacity, she was the lead director defining and implementing a solid strategy for all Boeing Engineering. She was the Director of Material & Process Technology in Phantom Works and the Seattle site leader for the Structural Technologies, Prototyping & Quality organization. In St. Louis, Dr. Chong has also served as the Department Head of three engineering departments at Boeing St. Louis: Materials, Processes, Standards & Producibility; Liaison Engineering; and Production/Process Engineering. She was the Manager of Fabrication Processes in the Manufacturing Technology Processes organization. In that capacity, she was responsible for the Equipment Engineers and Material, Process, and Producibility Engineers who support the Fabrication Centers and the Production Aircraft Programs (F/A-18C/D, F-15, AV-8B, T45TS, and C-17). Dr. Chong has also served as the Team Leader of the Material & Product Form Engineering team in Production Aircraft Programs. Dr. Chong was the team leader of the both the Advanced Metallic and NDE teams in the Advanced Materials & Structures organization in Phantom Works. Dr. Chong also supervised the MDMSC metallographic and testing laboratories. She performed failure analysis on advanced missile and space components. She was Program Manager of three DoD contracts dealing with semisolid metalworking of space parts, elimination of the casting factor in titanium, and high temperature missile airframe materials. Dr. Chong also managed the Shuttle Student Involvement Project which was flown on the first shuttle after the Challenger disaster. Dr. Chong received Bachelors degrees in both biology and psychology from the University of Illinois in 1971. She continued on at the University of Illinois and earned Masters degrees in both physiology (1975) and metallurgical engineering (1983). In 1986, Dr. Chong received her Ph.D. from the University of Illinois. She completed an Executive Master of Manufacturing Management at Washington University in 1998. Dr. Chong has also served as the St. Louis representative to Military Handbook 5, where she has chaired the Aerospace Users' Group and the titanium casting group. Dr. Chong is also a member of TMS, AIAA, ASM International, SME, SWE, Beta Gamma Sigma, and Tau Beta Pi. She was a 2001 graduate of Leadership America, a 1999 Participant in the Greater Missouri Leadership Challenge, and 1997 recipient of the YWCA Special Leadership Award in Science & Technology. Dr. Chong has received Boeing Corporate Diversity Award (2003), Women of Color Technology All-Star (2002), the OCA (Organization of Chinese Americans) Corporate Achievement Award (2002), Diversity Change Agent (2005), and Women of Color in Technology Managerial Leadership Award (2008). She was also recognized as an outstanding alumna of University of Illinois in 2006. Dr. Chong is a member of the National Materials Advisory Board. She has served on the Board of Trustees and is also a Fellow of the ASM International. In 2007-08, she served as the President of ASM International – the first woman in the 94-year history of the society.

## BRADFORD PATE, Ph.D.

***Research Physicist & Head of Diamond Materials Group, Naval Research Laboratory***

Bradford Pate received his BA in Physics and Electrical Engineering from Rice University, and his M.S. and Ph.D. in Applied Physics from Stanford University. His Ph.D. work was on the surface science of diamond and the interaction of the electronic and structural properties of the diamond surface with hydrogen. After 5 years on the staff of the Stanford Synchrotron Radiation Laboratory, he joined the Physics Department at Washington State University where his group continued work on diamond surface science and negative electron affinity emission properties of diamond. Since 2005, Dr. Pate has been a Research Physicist at the Naval Research Laboratory, where he currently heads the diamond materials group. His research focus includes physical and chemical surface/interface properties of diamond materials. He is author of over 50 refereed publications and 19 invited presentations.

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### ROGER DOUGHTY, Ph.D.

***Ceramic Matrix Composites (CMC) Technology Leader, Advanced Technology & Preliminary Design, GE Aviation***

Roger was raised in Newark, Delaware. He attended Cornell University (B.S. in Mechanical Engineering) and completed his PhD in Mechanical Engineering at Virginia Tech in 1994. After a short time as a manufacturing engineer at DuPont, his career at GE Aviation began in 1996 in turbine heat transfer design for the F136 fighter engine (Joint Strike Fighter) and aerodynamics for commercial engines. Beginning in 2002 he managed the Turbine Aero & Heat Transfer design group at Aviation and in 2004 assumed a Six Sigma Blackbelt role prior to his current assignment. He began working on the CMC technology in 2008 as a mechanical design manager. In his current role, Roger is responsible for coordinating many aspects of ceramic matrix composites (CMC) development for GE Aviation, including design activity, supporting materials development, and supply chain maturation.

### ROBERT M. HAZEN, Ph.D.

***Research Scientist At The Carnegie Institution Of Washington's Geophysical Laboratory And Clarence Robinson Professor Of Earth Science At George Mason University***

Dr. Hazen received the B.S. and S.M. in geology at the Massachusetts Institute of Technology (1971), and the Ph.D. at Harvard University in earth science (1975). After studies as NATO Postdoctoral Fellow at Cambridge University in England, he joined the Carnegie Institution's research effort. Hazen is author of more than 350 articles and 20 books on science, history, and music. A Fellow of the American Association for the Advancement of Science, he has received the Mineralogical Society of America Award (1982), the American Chemical Society Ipatieff Prize (1986), the ASCAP Deems Taylor Award (1989), the Educational Press Association Award (1992), the Elizabeth Wood Science Writing Award (1998), and the Distinguished Public Service Medal of the Mineralogical Society of America (2009). He has presented numerous named lectures at universities, and is currently Sigma Xi Distinguished Lecturer (2008-2010). He served as Distinguished Lecturer for the Mineralogical Society of America, and is a Past President of the Society. Hazen's recent research focuses on the role of minerals in the origin of life, including such processes as mineral-catalyzed organic synthesis and the selective adsorption of organic molecules on mineral surfaces. He has also developed a new approach to mineralogy, called "mineral evolution," which explores the co-evolution of the geo- and biospheres. In addition to his mineralogical research, he is Principal Investigator of the Deep Carbon Observatory, which is a 10-year international effort to achieve fundamental advances in understanding the chemical and biological roles of carbon in Earth's interior. Hazen's books have received widespread critical praise. The Music Men, Wealth Inexhaustible, and Keepers of the Flame, all coauthored with his wife, Margaret Hindle Hazen, explore ties between technology and culture. The Breakthrough, The New Alchemists, Why Aren't Black Holes Black, The Diamond Makers, and Genesis describe the forefront of scientific research. He has also written widely for popular audiences, including articles in Newsweek, Scientific American, Smithsonian Magazine, New Scientist and The New York Times Magazine. His writings have been selected for inclusion in several science writing anthologies, including The Best Science Writing of 2001. Prof. Hazen is active in presenting science to a general audience. At George Mason University he has developed courses and companion texts on scientific literacy. His books with coauthor James Trefil include the best selling Science Matters: Achieving Scientific Literacy and The Sciences: An Integrated Approach, now in its fourth edition. Hazen also served on the team of writers for the National Science Education Standards. He teaches courses on symmetry in art and science, on images of the scientist in popular culture, and on scientific ethics. Hazen served on the Committee on Public Understanding of Science of the American Association for the Advancement of Science, and on Advisory Boards for NOVA (WGBH Boston), Earth & Sky, Encyclopedia Americana, and the Carnegie Council. Dr. Robert Hazen, Distinguished research scientist and noted author including The Diamond Makers and The New Alchemist will be the Keynote speaker for the Education Day at INTERTECH 2013.

## THE FOLLOWING PAPERS, AUTHORS AND COMPANIES ARE UNDER CONSIDERATION FOR FINAL PRESENTATION FOR THE DESIGNATED SESSIONS AT INTERTECH 2013

## *AEROSPACE*

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THE FUTURE OF GAS TURBINE ENGINES AND HOW SUPERABRASIVES CAN SUPPORT IMMEDIATE AND LONG TERM CHALLENGES IN TECHNOLOGY ADVANCEMENT AND ECONOMICS.
**John Rizzo** – *Manufacturing Project Engineer. Pratt and Whitney, USA*

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PCD DRILL MANUFACTURED WITH OPTIMUM POINT GEOMETRIES TO ENHANCE SELF-CENTERING, CHIP CONTROL, HOLE SIZE AND ENTRY/EXIT BURR HEIGHT CONTROL FOR CARBON FIBER REINFORCED PLASTIC (CFRP) OR STACKED WITH TITANIUM AND ALUMINUM PLATES
**Qiang Wu** – *Senior Engineer, Kennametal Inc., USA*

**INTERTECH Reference # 1340**
THE EFFECT OF CBN SELECTION IN ENSURING HIGH PRODUCTIVITY, MEETING DESIRED CYCLE TIMES WHILE MINIMIZING PART THERMAL DAMAGE IN SUPERALLOY GRINDING
**Sridhar Kompella** – *Mesh Engineering, Diamond Innovations, USA*

**INTERTECH Reference # 1348**
A STUDY RELATING TO THE CRYSTALLINE STRUCTURE (CRYSTALLITE SIZE) AND THE FRACTURE MODE UNDER APPLIED SHEAR STRESS OF MICRON DIAMOND PARTICLES AND THEIR EFFECT ON PERFORMANCE IN LAPPING OF SAPPHIRE.
**Benjamin Rosczyk**, *Senior R&D Engineer*
Co-Authors: **Clement Onyenemezu**, *Ph.D. and* **Ion C. Benea**, *Ph.D., Engis Corporation, USA*

**INTERTECH Reference # 1351**
POTENTIAL FOR DIFFERENT PCD ROUND TOOLING SOLUTIONS IN CFRP APPLICATIONS AND AIMS TO ASSIST THE TOOLMAKER AND MACHINIST IN SUCCESSFULLY MILLING AND DRILLING CFRP
**Stephen Kelly**, *Regional Technical Manager (US, Canada and Latin America), Element Six, USA*

**INTERTECH Reference # 1352**
NEW HIGH STRENGTH, SHARP CBN PARTICLE DELIVERS IMPROVED PRODUCTIVITY IN AEROSPACE AND AUTOMOTIVE GRINDING APPLICATIONS
**Wayne Leahy**, *Regional Technical Manager (Asia), Element Six, Japan*

**INTERTECH Reference # 1354**
STATUS OF GRINDING IN THE MANUFACTURE OF TITANIUM ALLOY COMPONENTS
**Mike Hitchiner Ph.D.**, *OEM Technology Manager, Saint-Gobain Abrasives, USA*

**INTERTECH Reference # 1355**
EFFECTS OF ENGINEERED MICRO-GEOMETRY ON BURR FORMATION IN PCD MILLING OF ALUMINUM
**William Shaffer**, *President, Conicity Technologies, USA*

**INTERTECH Reference # 1356**
DEVELOPMENT OF CVD DIAMOND COATED CUTTING TOOLS FOR CFRP MACHINING
**Mitsuhiro "Chip" Goto**, *Managing Director/General Manager, Sumitomo Electric Hardmetals Corporation, Japan*

**INTERTECH Reference # 1357**
CVD SINGLE CRYSTAL DIAMOND FOR CUTTING TOOLS
**Yutaka Kobayashi**, *Engineer, Sumitomo Electric Hardmetals Corporation, Japan*

**INTERTECH Reference # 1358**
DEVELOPMENT OF CBN TOOL FOR MACHINING HEAT RESISTANT ALLOY
**Rich Maton**, *Engineering Manager, Sumitomo Electric Carbide Inc., USA*

**INTERTECH Reference # 1359**
DRILLING ADVANCED AIRCRAFT STRUCTURE WITH POLYCRYSTALLINE DIAMOND DRILLS
**Richard Garrick**, *President, Precorp Inc., USA*

**INTERTECH Reference # 1360**
THE ADVANTAGES OF WATER GUIDED LASERS FOR CUTTING, SHAPING & DRILLING DIAMOND, PCD, PCBN AND AEROSPACE MATERIALS.
**Dr. Peter Heath**, *C.Eng., M.I.M., Industrial Diamond Specialist, Synova S A., Switzerland*

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OVERVIEW OF GAS TURBINE ENGINE COMPONENT MATERIAL TECHNOLOGIES
**Dr. Ravi Shankar**, *Director, Coating and Process Technologies, FAA RS, Chromalloy, USA*

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HIGH EFFICIENCY IN MACHINING CARBON FIBER COMPOSITES AND METAL STACKS FOR AEROSPACE APPLICATIONS
**Dr. Abdelatif Atarsia**, *Aerospace Manager* – Co-Authors: **Dr. Peter Mueller-Hummel** and **Shane Hollenbaugh**, *MAPAL Inc., USA*

## MATERIAL PROCESSING

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A NEW METHOD FOR DISCRIMINATION AND CONTROL OF VARIOUS TYPES OF PULSES GENERATED DURING AN ELECTRICAL DISCHARGE GRINDING PROCESS IN PRESENCE OF A ROTATING ELECTRODE.
**Kotler Tee**, *RMIT University, Australia*

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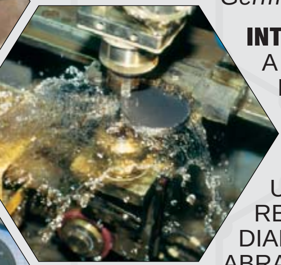
**Gerhard Weber**, *President, Dr. Fritsch GmbH, Germany*



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**Lei Guo**, *University of Toledo, USA*

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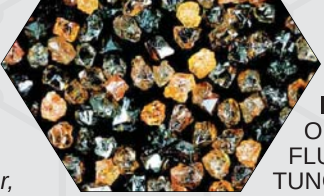
**Jeffrey Badger, PhD**, *The Grinding Doc, The Grinding Doc Consulting, USA*



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OPTIMIZATION OF THE GRINDING AND FLUID JET POLISHING PROCESS OF TUNGSTEN CARBIDE TOOLS WITH FREE FORM DESIGN
**Taghi Tawakoli**, *Prof. Dr., Institute of Grinding and Precision Technology KSF Furtwang, Germany*

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ADVANCED MACHINE TOOL AND DRESSABLE DIAMOND WHEEL TECHNOLOGY FOR THE GRINDING OF CARBIDE MICRO-THREADS.
**Mike Hitchiner Ph.D.**, *OEM Technology Manager* – Co-Author: **S. Mowatt-Larssen**, *R&D Manager, Drake Engineering, Warren OH, Saint-Gobain Abrasives, USA*

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NANO-CRYSTALLINE DIAMOND COATED & POLISHED CMM MEASURING PROBES WITH REDUCED WEAR AND MORE RELIABLE MEASUREMENTS
**Wim Nelissen**, *Owner, Diamond Product Solutions, The Netherlands*

**INTERTECH Reference # 1364**
A NON-WOVEN DIAMOND ABRASIVE FOR THE POLISHING OF HARD TO GRIND MATERIALS
**Richard Crowley**, *Technical Service Engineer, 3M, USA*

## RESEARCH & DEVELOPMENT

**INTERTECH Reference # 1322**
OPTIMIZATION OF THE MICROSTRUCTURE OF VITRIFIED GRINDING WHEELS BY USING ULTRA-FINE DIAMOND ABRASIVES
**Kenichiro Kimbara**, *A.L.M.T. Corp., Japan*

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RESEARCH AND DESIGN WORK IN WELL DEVELOPED COUNTRIES
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A COMPARISON OF THE ABRASIVE WEAR RESISTANCE AND THE IMPACT-FATIGUE FRACTURE RESISTANCE OF DIFFERENT PCD MATERIALS
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**Dr Tim Halpin** – Co-Authors: **Mr. Joe McCloskey, Mr. Aidan O'Neill, Dr. John Barry**, *Element Six GmbH, Germany*

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THE MECHANISMS OF WEAR AND FRICTION INVOLVED IN AN ABRASIVE PROCESS FOR FINISHING FLAT WORKPIECES, BASED ON THE COMBINATION OF IMPORTANT GRINDING AND LAPPING CHARACTERISTICS
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**Steve Martell**, *Manager Technical Support Services, Sonoscan Inc., USA*

## SUPERABRASIVE TECHNOLOGY

**INTERTECH Reference # 1323**
RESULTS OF A COMPREHENSIVE STUDY REGARDING THE LAPPING OF POLYCRYSTALLINE DIAMOND COMPACT (PDC)
**Alex Fang**, *Assistant Professor, Texas A&M University, USA*

**INTERTECH Reference # 1325**
CORRELATION OF FAILURE STRENGTH WITH MAGNETIC PROPERTIES AND MATERIAL COMPOSITION OF POLYCRYSTALLINE DIAMOND
**D.K. Mukhopadhyay** – Co-Author: **Ken Bertagnolli**, *Vice President Research and Development, US Synthetic Corp., USA*

**INTERTECH Reference # 1326**
MICROSTRUCTURE OF THE DC COMPONENTS IS STUDIED USING A RANGE OF MATERIAL CHARACTERISATION TECHNIQUES
**Dr. Jim Boland**, *CSIRO - Earth Science and Resource Engineering, Australia*

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REDUCTION OF INTRINSIC COMPRESSIVE STRESS OF CUBIC BORON NITRIDE FILMS
**Rene Bertram**, *Dipl.-Ing. (FH), University of applied sciences, Mittweida, Germany*

**INTERTECH Reference # 1335**
THE EFFECT OF GRAIN SIZE AND SINTERING PRESSURE ON THE PDC (POLYCRYSTALLINE DIAMOND COMPACT) USED IN OIL & GAS DRILLING
**Dong Ik Choi**, *ILJIN Diamond Co. Ltd., Korea*

**INTERTECH Reference # 1336**
DATA SHOWING THE QUALITY OF DIAMONDS MADE IN CHINA HAS IMPROVED OVER TIME.
**Li Zhihong**, *Secretary General/Vice Chief Engineer, Industrial Diamond Association of China CMTBA/Zhengzhou Res, China*

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CUTTING VERSATILITY WITH DIAMOND AGGREGATES
**Cedric Sheridan**, *FOXMET S.A., Luxembourg*

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A NEW SERIES OF PCBN GRADES THAT DEMONSTRATE IMPROVED CRATER WEAR RESISTANCE AND EDGE TOUGHNESS CORRESPONDING TO APPLICATIONS RANGING FROM CONTINUOUS TO INTERRUPTED TURNING
**Anshul Singh**, *Machining Applications Manager, Diamond Innovations, USA*

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TWO NEWLY-DEVELOPED, COMPLEMENTARY PCBN GRADES FOR MACHINING POWDER METAL MATERIALS
**Nelson Yee**, *Sr. Prod Dev Engr., Diamond Innovations, USA*

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CRYSTALLOGRAPHIC DEFECTS AND MECHANICAL STRENGTH OF MICRON MONOCRYSTALLINE
**Dr. Ion Benea**, *Vice President, Operations/Hyprez Products* – Co-Author: **Benjamin Rosczyk**, *Engis Corporation, USA*

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**Johannes Schneider**, *Manager Strategic Marketing, CeramTec GmbH; SPK Cutting Tool Division, Germany*

## EDUCATION SESSION

**INTERTECH Reference # 1366**
EDUCATION SESSION - CBN GRINDING
**David Edwards**, *Director of Sales and Marketing, Action Superabrasive Products, Inc., USA*

**INTERTECH Reference # 1367**
Education Session - Polycrystalline cBN Machining
**Scott Ries**, *PCD Division Manager, Vollmer of America Corp.*

**INTERTECH Reference # 1368**
EDUCATION SESSION - POLYCRYSTALLINE DIAMOND MACHINING
**Mike Mustin**, *Sales Manager, American Superabrasives Corp., USA*

**INTERTECH Reference # 1369**
EDUCATION SESSION - DIAMOND GRINDING
**Radu Comen**, *Sr. Applications Engineer, 3M Abrasives Systems Division – Precision Grinding and Finishing*

**INTERTECH Reference # 1370**
EDUCATION SESSION - HISTORICAL INTRODUCTION
**Keith Reckling**, *Field Sales Representative, National Research Company, USA*

**INTERTECH Reference # 1371**
Education Session - Industry Overview
**Chris Winkel**, *President, Worldwide Superabrasives, USA*

**INTERTECH Reference # 1378**
EDUCATION SESSION – WEAR PARTS AND WIRE DIES
**Aaron Nolan**, *Product Manager, Sumitomo Electric Carbide, Inc. Materials Group, USA*

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30 Word Company Description: ______________________________

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**SPONSOR AD SAMPLE SHOWN HERE** ➜
**Actual Sponsor ad size 2.5" high x 3.5" wide**

**Industrial Diamond Association of America, Inc.**

P. O. Box 29460
Columbus, Ohio 43229 USA

*Association of superabrasive and ultrahard material suppliers, tool manufacturers, component producers, machine tool builders, end users, educators and others related to the application, manufacture use and sales of superabrasives.*

*Is a proud sponsor of ...* INTERTECH 2013 *An International Technical Conference on Diamond, Cubic Boron Nitride and their applications. www.intertechconference.com Hyatt Regency Baltimore Harbor BALTIMORE, MARYLAND USA May 6, 7 & 8, 2013*

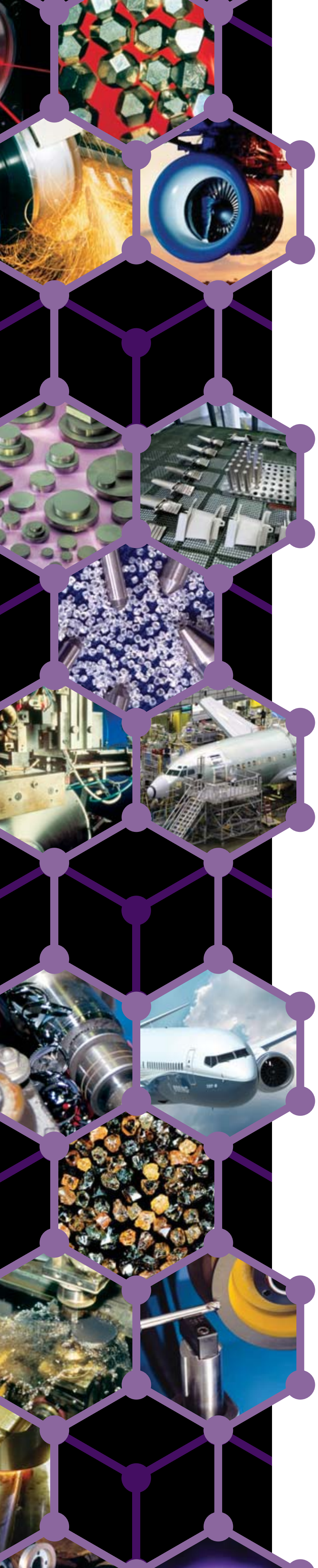
## INTERTECH 2013 WEBSITE BANNER AD REQUEST AND RESERVATION

*The Banner ads rotate their position on the webpage, so each time a viewer visits your ad will be in a different location from top to bottom. In this way all companies share in the prime top spot location.*

If you select a Website Banner ad for INTERTECH 2013. We will reserve a space on the Registration & Sponsorships link under "corporate sponsors" on the INTERTECH 2013 website. Mail the completed banner ad designed to fit in a window 238 pixels wide by 80 pixels high (approximately 4.25" X 1.25") either on a CD to: Industrial Diamond Association of America, P. O. Box 29460, Columbus, Ohio 43229 USA or by Email to tkane-ida@insight.rr.com in a jpg or gif picture file, or as a PDF file.

**WEBSITE DESIGN SAMPLE:**

**Industrial Diamond Association of America, Inc.**
**P.O. Box 29460**
**Columbus, Ohio 43229 USA**
**Tel: 614-797-2265 - Fax: 614-797-2264**
**www.superabrasives.org**
**email: tkane-ida@insight.rr.com**



# INTERTECH Conference Registration Form

*FEES - INCLUDES ACCESS TO ALL SESSIONS, EXHIBIT AREAS, MEALS, WELCOME RECEPTION AND ELECTRONIC CONFERENCE PROCEEDINGS*

| | | |
|---|---|---|
| **Full Conference** | **–** | **$1295 USD** |
| **IDA of America Member** | **–** | **$1195 USD** |
| **Speakers/Presenters** | **–** | **$ 995 USD** |

Name: ______________________ Title: ______________
Company: ______________________

**5% Discount for any company with 5 or more attendees (include forms with additional names)*

☐ Attendee ☐ Speaker ☐ IDA America Member

Address: ______________________
City: ______________________ State: ______________
Zip/Postal Code: ______________ Country: ______________
Phone: ______________________ Fax: ______________
E-Mail: ______________________

## SPECIAL DISCOUNTS AND CONSIDERATION:

☐ **END USER**, classified as those companies strictly "USING" superabrasives in the manufacture of finished components- $795 USD

☐ **STUDENT**, Registered full time towards a degree. Must be accompanied by a signed letter from Department head verifying status - $795 USD

☐ **GUEST of a registered attendee wishing to attend just the Monday's Welcome Reception on May 6, - $125 USD.** Number of Guest Reservations _______

Spouse/Guest Name(s):______________________

☐ **EDUCATION SESSION, A Person may attend *just* the Wednesday May 8, Fee - $395 USD (No other session or event privileges)**

Name: ______________________ Title: ______________
Company: ______________________

☐ End User ☐ Student ☐ Guest ☐ Education Session

Address: ______________________
City: ______________________ State: ______________
Zip/Postal Code: ______________ Country: ______________
Phone: ______________________ Fax: ______________
E-Mail: ______________________

**TOTAL AMOUNT TO BE CHARGED** ______________ **USD**

## METHOD OF PAYMENT

***Check the method of payment and fill in the credit card information, if applicable. All checks must be paid in US funds and drawn on a U.S. bank.***

☐ Check - Payable to: Industrial Diamond Association of America
☐ Wire Payment - Contact IDA Headquarters by email: tkane-ida@insight.rr.com or Fax: 614-797-2264 to receive banking transfer information.

☐ CREDIT CARD ☐ VISA ☐ MasterCard ☐ American Express

Card Number: ______________________

Expiration Date: __________ **TOTAL AMOUNT TO BE CHARGED** ______________ **USD**

Name As It Appears On Card: ______________________

**Credit Card Billing Address:**

Name: ______________________
Address: ______________________
City: ______________________ State/Province: ______________
Zip/Postal Code: ______________ Country: ______________

**FAX OR MAIL COMPLETED FORM TO:**
INTERTECH 2013 Registration • P.O. Box 29460 • Columbus, Ohio 43229 USA • Fax: 614-797-2264
**OR REGISTER ON-LINE AT WWW.INTERTECHCONFERENCE.COM**

**QUESTIONS? Call:** 614-797-2265 • **Email INTERTECH Chairman:** Terry Kane at: tkane-ida@insight.rr.com
or **INTERTECH Meeting Planner/ Business Manager:** Kathy Kane at: kathykgc@insight.rr.com

# TABLETOP RESERVATION FORM

Another special feature of the **INTERTECH 2013** technical conference will be the inclusion of Technical/Product tabletop displays by participating companies. There will be a LIMITED number of spaces around the conference foyer and break area made available to companies that wish to exhibit.

***Tabletops will be displayed at INTERTECH in the Foyer Area of Hyatt Regency Baltimore Inner Harbor.***

Due to the limited space, reservations can only be guaranteed when the completed form and payment are received at IDA Headquarters or completed on-line. Additional companies seeking space will be put on a waiting list as received.

***These spaces fill up early so make your reservation as soon as possible!***

**PLEASE PRINT CLEARLY AND FILL IN COMPLETELY:**

First Name: ______________________________ Last Name: ___________________________________

Title: ___________________________________ Company: ___________________________________

Address: _________________________________________________________________________

City: ___________________________________ State/Province: ______________________________

Zip/Postal Code: ____________________ Country: ___________________________________________

Phone: ___________________________________ Fax: _______________________________________

Email: ____________________________________________________________________________

## FEE SCHEDULE

The fee for each tabletop space is $995.00 USD.

## WHAT IS INCLUDED?

Exhibit space reservation fee will cover a single (6'x 2.5') draped table for placement of materials or exhibits. Any additional requirements for electricity, Internet connections, setup or drayage must be contracted with hotel services.

## EXHIBIT PARAMETERS

Each display must be limited to the confines of the (6'x 2.5') tabletop with a **5 foot maximum height off the table** (ceiling height is only 8 feet). Large exhibits that stand on the floor are not allowed. No display may have loud music, audio or lighting that interferes with normal conversation, or is deemed problematic by conference management. No exhibit may have any flammable or hazardous materials, operating machinery or heavy equipment. Please direct any specific questions or concerns to IDA Headquarters – Telephone 614-797-2265, Email: tkane-ida@insight.rr.com.

***Please indicate your selections:***

____ YES, I want to reserve a tabletop for my company's exhibit materials.

**TOTAL AMOUNT ENCLOSED:** $__________________

## METHOD OF PAYMENT

***Indicate the method of payment and fill in the credit card information, if applicable.***

____ Pay by check, all checks must be paid in US funds and drawn on a U.S. bank - Payable to: Industrial Diamond Association of America

____ Wire Payment – **Email: tkane-ida@insight.rr.com to receive wire payment information**

**CREDIT CARD:** ____ VISA ____ MasterCard ____ American Express

Card Number: ______________________________________________________________________

Expiration Date: ___________ Name as it appears on card: ____________________________________

Credit Card Billing Address:

Name: __________________________________________ Title: _________________________________

Company: _________________________________________________________________________

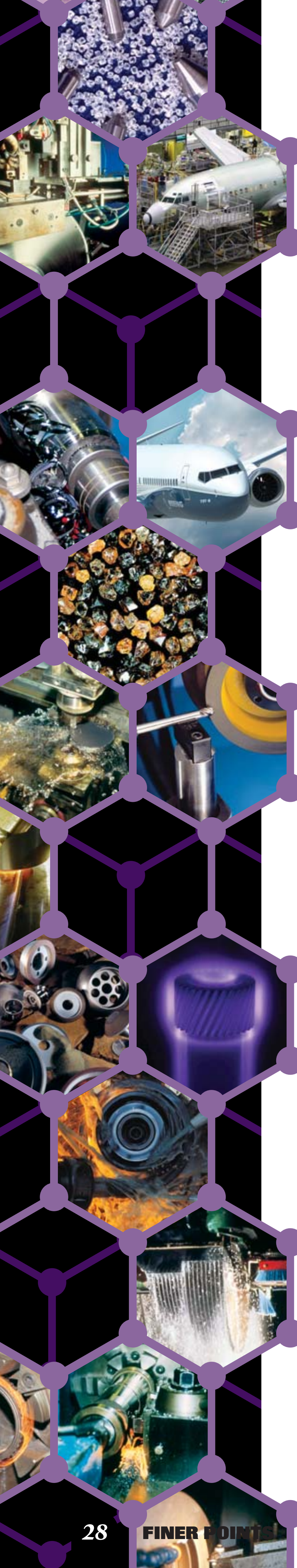
Address: __________________________________________________________________________

City: ___________________________________ State/Province: ______________________________

Zip/Postal Code: ___________________________ Country: ___________________________________

**EMAIL, FAX OR MAIL BOTH PAGES OF COMPLETED FORM TO:**

INTERTECH 2013 Tabletop Reservations
P.O. Box 29460 • Columbus, Ohio 43229 USA
Fax: 614-797-2264 • Email: tkane-ida@insight.rr.com



# Educational Session at INTERTECH 2013 – Superabrasive Materials, Principles & Applications

***Register today for the Educational Session at INTERTECH 2013 (See Registration Below)***

For a tremendous opportunity, **INTERTECH 2013** will be offering an educational program by the Industrial Diamond Association of America (IDA). Superabrasives are critical to all of industry due to their longevity, properties and characteristics. This program to be held on Wednesday, May 8 as a concurrent session at the **INTERTECH 2013** conference will be unlike any educational program ever offered by this industry.

- ***TAUGHT BY LEADING EXPERTS FROM THE IDA*** and established solely for the purpose of educating attendees without any commercial influence or individual bias as experienced by attendees at previous "training" courses.
- ***EDUCATION FOR A WIDE RANGE OF PEOPLE*** employed throughout the superabrasives industry. The IDA understands that manufacturing needs are paramount for productivity and performance. For an employee, all the way from an operator classification to an application development or manufacturing engineer to fully execute their job, they must understand all there is to know about superabrasives. If anyone is to increase their value to their employer they must have a complete understanding of their own particular job, plus a fundamental knowledge of the way their job fits in the overall scheme in the big picture.
- ***CRITICAL NEED FOR PEOPLE TO FULLY UNDERSTAND THE CHARACTERISTICS OF SUPERABRASIVES*** as well as have an insight to the ways they are applied either as abrasives or nonabrasives. This session will be specifically structured to meet the needs of our industry and the end users industries we support though tooling and abrasives. The Educational Session will be a draw for an audience at many levels within the industry. Experienced people may use this as a refresher, while those new to the industry may find this session fills a requirement to understand the nuances across the whole spectrum of superabrasives. Now, machine operators, manufacturing supervisors, toolmakers, salesmen, engineers and others can obtain the basics of every aspect about superabrasives and their use.
- ***HISTORY OF ABRASIVES BOTH CONVENTIONAL AND SUPERABRASIVES*** will be covered and how they evolved over the years. It will cover terms that are frequently used so everyone "speaks" the same language. The attendee will be able to see how various conventional abrasives and other methods such as Water jets, EDG, sound waves and lasers fit in the overall scheme of things in the manufacturing world. Then the session will go into the world of superabrasives and cover natural diamond, synthesized diamond, cubic boron nitride (cBN), polycrystallines and the new CVD Diamond and cBN. The approach will be to explain the very properties and characteristics of these superabrasives and also show why they are used in so many non-abrasive applications like prosthetics, wear parts, medical devices, laser windows, surgical knives and even as carriers of medicine at the nano range.
- ***BASICS OF MACHINING AND GRINDING*** will be covered but with a detail to the "why's and wherefores" of the processes. What is a grinding wheel? How is it made? What determines its performance? Same thing with machining ... What makes a cutting tool? How applied and what materials can be machined? There will be coverage given to the intricate part of an abrasive process, showing what is happening at the point of material removal. The attendee will gain a full understanding of the entire process ... abrasives, tools, work piece materials, coolants and even the machine tools. An attendee won't just know that truing and dressing is required, they will learn why ...
- ***ADDED FEATURES -*** the course will cover any other abrasives and materials used from drill bits in oil & gas to sawblades and core bits in concrete and construction. An important portion will be coverage on the economics of superabrasives and the ways they can improve an operation through cost reduction.

## WHO ARE THE PEOPLE AT YOUR COMPANY THAT CAN BENEFIT FROM ATTENDING?

**REGISTRATION PAGE FOR EDUCATION SESSION ONLY**

Company: ______________________________
Address: ______________________________
City: ______________________ State/Province: ______________________
Zip/Postal Code: ____________ Country: ______________________
Phone: ______________________ Fax: ______________________
Email: ______________________________

**ATTENDEES:**

Name: ______________________ Name: ______________________
Title: ______________________ Title: ______________________
Name: ______________________ Name: ______________________
Title: ______________________ Title: ______________________
Name: ______________________ Name: ______________________
Title: ______________________ Title: ______________________
Name: ______________________ Name: ______________________
Title: ______________________ Title: ______________________

**TOTAL Number of Educational Session Reservations _____ @ $325 UDS Each = ______________**

**Fax to: 614-797-2264 or email this completed form to tkane-ida@insight.rr.com**

# INTERTECH 2013 TECHNICAL ADVISORY COMMITTEE

The **INTERTECH 2013** TECHNICAL ADVISORY COMMITTEE will provide the technical guidance and recommendations for the technical portion of **INTERTECH 2013**. They will also provide formal review of the submitted abstracts and papers to insure that the quality and content of each paper is relevant and representative of the technology for the superabrasives industry and guarantee each conference session will consist of the best research papers and state-of-the-art topics for our industry. The TECHNICAL ADVISORY COMMITTEE is a standing committee in itself to assist through-out the year to expand technical programs of the IDA and to make sure the content of technical information is legitimate, viable and valuable. Dr. Ion Benea will serve as the founding Chairman of this committee; future chair people to be voted on by committee. Anyone willing to serve has a position as long as they want it providing they follow IDA code of ethics as outlined in the IDA By-laws. The TECHNICAL ADVISORY COMMITTEE (as technical advisory body) will be made up of scientists and engineers well known in the world of superabrasives. The goal is to improve on the technical content of **INTERTECH** Conferences. Consequently, the IDA has reached out to industry, research and academia (universities) for help in forming this committee. The goal is for the Technical Advisory Committee to have a balanced composition between industry, research and academia.

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Research Associate – Smithsonian National Museum of Natural History
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Ashford, CT USA

**PROF. LIANGCHI ZHANG, Ph.D.**
Scientia Professor & Australian Professorial Fellow. School of Mechanical and Manufacturing Engineering
The University of New South Wales
New South Wales, Australia

# INTERTECH 2013 Deadlines, Requirements & Guidelines

***All papers must adhere to the following guidelines for final acceptance as an oral presentation. The deadlines listed are critical due to the fact that all presentations and papers (Proceedings) will be loaded onto thumb drives and handed out to attendees of INTERTECH 2013.***

1. ABSTRACTS SUBMITTED AFTER APRIL 1, 2013 MUST BE SENT TO tkane-ida@insight.rr.com.
   - a. Abstracts can be submitted on-line at www.intertechconference.com or submitted by email to: tkane-ida@insight.rr.com. They may also be mailed to INTERTECH 2013 Abstract - P.O. Box 29460 - Columbus, Ohio 43229 USA
   - b. All abstracts will be assigned a conference reference number (1301-1399) and the submitter will be notified by email of receipt. All further correspondence must reference this assigned number.
   - c. Abstracts will be reviewed by the INTERTECH Technical Advisory Committee (TAC)
   - d. After review each submitter will receive one of four notifications:
     - i. Paper accepted for final presentation
     - ii. Paper will be accepted with recommendations
     - iii. Paper will only be considered if a new abstract is submitted with changes by review committee included
     - iv. Paper refused as inappropriate for INTERTECH – Submitter may choose to submit a new abstract
2. AFTER ABSTRACT ACCEPTED & APPROVED, THE FIRST FULL WRITTEN DRAFT OF PAPER IN MICROSOFT WORD MUST BE RECEIVED BY THE REVIEW COMMITTEE PRIOR TO APRIL 1, 2013. They may be emailed to INTERTECH 2013 Paper # (include reference #) to: tkane-ida@insight.rr.com. They may also be mailed to INTERTECH 2013 Paper # (include reference #) - P.O. Box 29460 - Columbus, Ohio 43229 USA. If Paper is being mailed on a CD they can be mailed to INTERTECH 2013 c/o Kane Global Communications, 6081 Central Park Drive, Columbus Ohio 43231 USA
3. If paper is declined for content or appropriateness for this conference, suggestions or recommendations by the committee for paper clarification will be sent back to the author at that time.
4. FINAL DRAFT (IN WORD) ALONG WITH YOUR POWERPOINT PRESENTATION WITH GRAPHICS AND PHOTOS MUST BE RECEIVED ON A CD BY APRIL 15, 2013 AT: INTERTECH 2013 CONFERENCE, 6081 CENTRAL PARK DRIVE, COLUMBUS, OHIO, 43231 USA. If the files are small enough, they may be emailed to INTERTECH 2013 Paper # (include reference #) to: tkane-ida@insight.rr.com.
5. POWERPOINT PRESENTATION MUST ADHERE TO THE TEMPLATE FORMAT LISTED UNDER "PRESENTATION TEMPLATE" AT THE INTERTECH WEBSITE LINK
6. Make sure your name, title, any contributors or coauthors as well as the INTERTECH 2013 reference number are included on the outside of the CD. This will be loaded into the Conference computers for projection. You are also advised to bring a backup CD or flash drive in case there is a problem with the one you mail.
7. Multiple contributors may be listed on the paper, but the first person listed will be considered the presenter for the INTERTECH 2013. Additional contributors for the paper will be listed in the conference program as coauthors.
8. English will be the language for all materials and oral presentation. Papers need to be written in English and we ask that a person with an excellent command of English, or English as their first language review the paper prior to submission for accuracy of terminology.
9. Time allotted for each paper will be approximately 40 minutes, 30 minutes for the formal presentation and 10 minutes for questions.
10. Please write paper using the third person to avoid commercialization and improve the credibility of the paper.
11. It is preferred that instead of "I found", "we studied", "my results", "our company developed a process" and similar terminology, the paper be written and stated in terms of "it was found", "studies were made", "the results were" or "a process was developed".
12. Advantages of product use or development in terms of productivity, savings or performance must be shown in all papers. Projected or proven examples should be included.
13. Graphics should be clear and easy to read from the back of a large room, please use bullets and avoid too much text. When designing your slides it is better to have more slides with less text in a larger font, instead of fewer slides with more text in a small font. If you cannot read the text clearly on a computer screen in "normal slide view" the audience will not be able to read it either.
14. Photographs of applications, products, parts, etc. MUST be included wherever possible. Due to the many languages spoken by attendees, photos and graphics add clarification and understanding to the presentation. This helps the audience understand many of descriptions, products and applications.
15. Trade names must not be used for any products featured in the presentation and no company reference (except in terms of end use, such as General Motors, Boeing, Ford and the like) should be used in the presentation.
16. Company logos, titles, etc. of presenters and their company may only be on the introductory slide/graphic and not used through the presentation or on every slide. This makes the paper look too commercial. If you are speaking about a company machine in a given operation, the photos should not show logos or company names.
17. Text must be composed in Microsoft Word with indication of where graphics will be used. Graphics, photos and charts for presentation support must be created and submitted in Microsoft PowerPoint. This is being done to keep uniformity of the presentations and to allow for preloading of all presentations into the conference computer systems. Conference computers will be PCs loaded with Microsoft Office and will not open other programs.
18. Overhead projectors or 35 mm slide projectors will not be provided. All presentation graphics/slides and photos will be shown on computer projection systems. If a presenter require overheads, or another form of graphic support, they will need to submit a request in writing to the Program Review committee c/o Industrial Diamond Headquarters P.O. Box 29460, Columbus, Ohio 43229 by April 1, 2013 or email: tkane-ida@insight.rr.com

Papers and all graphics or slides become property of the Industrial Diamond Association of America and copyrighted for use at INTERTECH 2013. The Industrial Diamond Association of America reserves the right of first publication for any paper at INTERTECH 2013 and may authorize use of any paper as an article in other trade publications for consideration of promotion or technological advancement. Please contact Terry Kane, INTERTECH 2013 Conference Chairman - Telephone: 614-797-2265 Email: tkane-ida@insight.rr.com with any questions or points for clarification.

***We anticipate and excellent program and will be proud to have you as part of INTERTECH 2013 the international conference on diamond, cBN and their applications ...***

## CHECKLIST *of things to do...*

**FINER POINTS**

☐ Renew my subscription to Finer Points magazine.

☐ Reserve my ad space in the next Finer Points issue.

☐ Submit article for consideration in future issue of Finer Points.

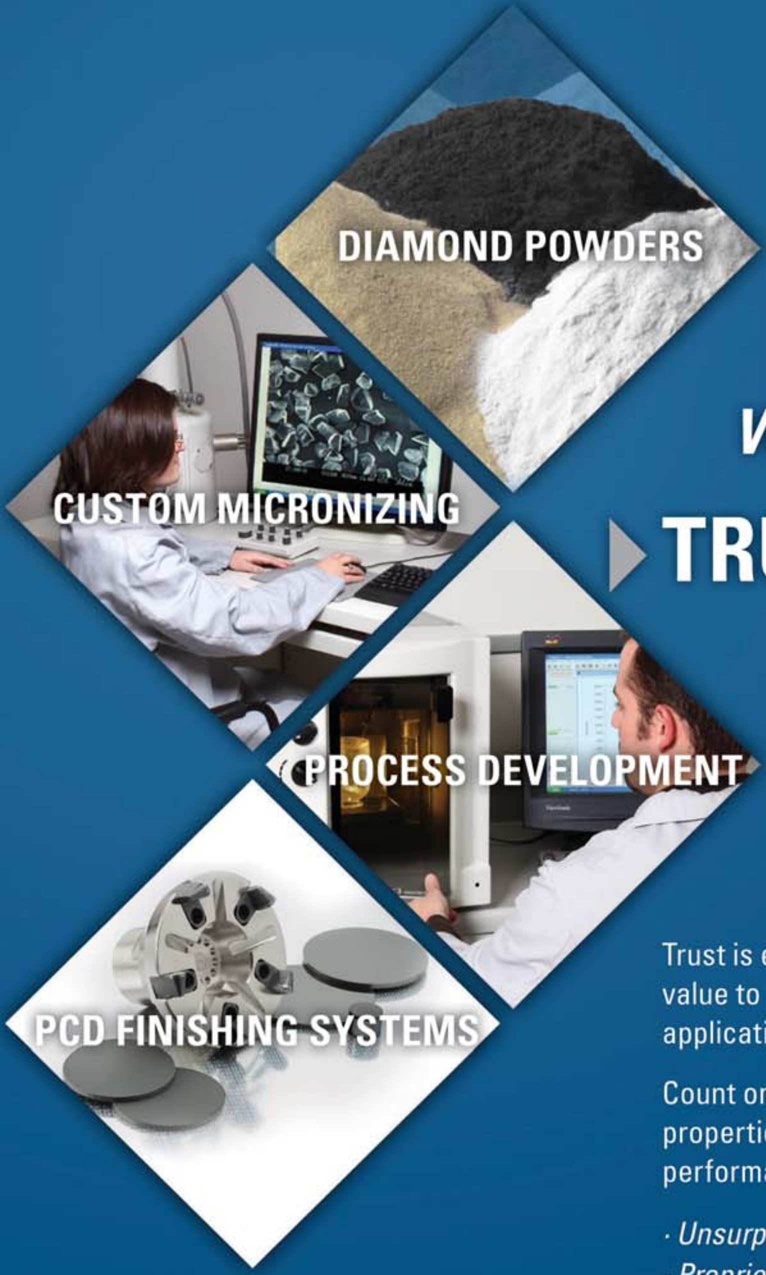
☐ Send Finer Points my business news, new products, new hires, promotions, industry news and other press release items.

☐ Send in my membership application to the IDA.

☐ Refer a company to IDA for consideration as a member.

☐ Visit the IDA Website at: www.superabrasives.org and submit a question or comment.

☐ Contact an IDA member for products or services.



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* Grinding tests conducted by Element Six with ABN900 50/60 US Mesh show the potential for extending tool life by up to 35%. Tests using ABN900 120/140 US Mesh show the potential for extending tool life by up to 55%. Contact Element Six for details of these tests, product samples and results.

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